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By SIR MORTIMER WHEELER, *President*

[Delivered 11th April 1957]

ON 1st July 1858 Charles Darwin and Alfred Russell Wallace laid before the Linnean Society their independent but closely approximate theories of biological evolution. Next year the centenary of that event—I suppose the greatest intellectual event of the nineteenth century—will be celebrated in a variety of ways and places. The steadfast gaze of the Prince Consort, from beneath his gilded tabernacle in Kensington Gardens, will encompass an international throng of celebrants at the doors of his great rotunda across the road; and we may imagine his puzzled but inquiring spirit hovering a trifle uneasily over the commemoration of an event which marked, if not darkened, his declining years. I trust that we ourselves shall, at the proper time, respectfully recall a moment which was to mean only less to the humanistic than to the biological sciences.

But it is not of evolution in its broader applications that I would speak to you today. I am going for the next half-hour to invite your attention to the more parochial evolution, if we may so call it, of antiquarian studies in relation to our own Society. Those of us at least who have had long association with our venerable sodality must more than once have asked ourselves: Are we, as a Society, keeping pace with changing need and circumstance? Times change; do we change in close enough harmony with them? To put it shortly and bluntly, Is the Society doing its job? Recently, prompted afresh by one of our Vice-presidents, our Council has been reviewing this matter, and it is very proper that it should do so at recurrent intervals.

But what *is* the Society's job? What *is* the Society of Antiquaries, and what are its primary functions? Our answer, needless to say, if it is to be profitable, must reflect the conditions of today, unembarrassed by the usages of yesterday, which we may be content to leave to our Director's *History*.

In a few bald words it may be affirmed that the Society consists of not more than a thousand Fellows elected by the Fellowship in secret ballot; that, with the aid of the State, it occupies dignified and accessible apartments; that it maintains the best general archaeological library in the kingdom, outside the British Museum, and has an efficient postal book-service; that in its periodicals and monographs it supports an unsurpassed standard of publication; that, on twenty or more occasions every year, it provides a rostrum for archaeological discovery and recension without

restriction as to place and period; and that it professes in some measure to promote and support research in the study and in the field.

All that reads rather like a sales prospectus; but those are indeed the Society's primary characters and activities, and accordingly I propose to consider them briefly first. In the sequel I shall hope also to show that the Society is, at the same time, something a good deal more significant than a mere aggregation of services and facilities.

First I take the composition and selection of our Fellowship, and thereby plunge straight to the heart of an ancient and much canvassed problem. It is fair, I think, to say that our Fellows fall into two categories: an increasing number of professional antiquaries, and a much larger proportion of men and women with (to use the time-honoured phrase) 'a general attachment to the study of antiquity' or with a non-professional interest—sometimes amounting to specialized knowledge—in some particular branch of antiquity. The former, professional category was, until recently, very small indeed. When your President first attained to Fellowship there may have been scarcely more than a couple of dozen professional archaeologists in our active ranks. The British Museum supplied three or four, the Office of Works one or two, the Royal Commissions and the Victoria County History perhaps half a dozen between them. A small—very small—scattering could be added from the universities, but few of these had at that time specific archaeological departments. Today, on the other hand, the Royal Commissions and the Ministry of Works alone contribute no fewer than two dozen of our Fellows, and most of our increasingly numerous universities are represented amongst us. Altogether, I reckon that in the present year of grace we have something like *seven times* as many professional Fellows as we had a generation ago. Nor is the problem merely one of numbers. This great access in professionalism has been accompanied by technical and conceptual advances which have in many aspects *reshaped* the study of antiquity, not merely by enlarging its scope and accuracy but, above all, by affirming as never before the significant unity of the humanistic and scientific disciplines. In a broad sense, the age of specialization is at an end; the humanist must nowadays be something of a scientist. But, paradoxically, for that very reason the volume of knowledge which confronts the student of humanity is now so formidable that an unprecedented degree of specialization is forced upon him. In one way and another the creative study of antiquity is today a whole-time task.

I need not develop this point, but its consequences are relevant to the present issue. The specialist is necessarily conscious—sometimes over-conscious—of the cleft which separates him from the rest of mankind. He has the same sort of egocentricity that on the political stage marks and sometimes mars the modern surge of petty nationalism. Indeed there is a suggestive parallelism between the current trends of science and politics: an ingrowing individualism *vis-à-vis* an increasing need for international or interdepartmental co-operation. This bifid process is, I have no doubt, as right in principle as it is inevitable in practice. Anyway, it is with us, and that's that. In the study of antiquity, it means an increasing emphasis on specialized interests on the one hand, and an increasing need for liaison between those interests on the other.

This process of specialization is not of course a new one. It is new today only in the sense that our governmental and educational system is supporting more and more specialists, and that specialist techniques are becoming more and more complex. But, as I say, it is not new. For over three-quarters of a century Hellenic and Palestinian research have both had their particular media, and it is nearly half a century since a distinguished Fellow of ours established a separate medium for Roman studies. Since 1836 the numismatists have sustained a busy society of their own. More recently the Prehistoric Society, conducted mainly by our Fellows, has with outstanding success provided an outlet for the expanding activities of pre-history, and during the present year we may see the launching of a ship designed to sail the ill-charted waters of the dark ages. There are other examples of the same individualist tendency, and we welcome them with open arms. We welcome them as desirable additions to our family, and in their achievement take the vicarious pride which is proper to the parental state. In the aggregate they enormously strengthen the efficacy and prestige of the discipline to which we adhere.

But where, amidst this formidable departmentalism, stand those Fellows whose qualification is merely 'a general attachment to the study of antiquity'; those whom the newer snobbism designates, a little depreciatively, as 'amateurs'? For they still, even in these progressive days, constitute something like 80 per cent. of our Fellowship. Let me affirm at once that I regard the 'amateur' as an essential member of any civilized community, and particularly of one which concerns itself with the humanities. In saying that, I hope that I shall not be accused for one instant of underrating the prime importance of the specialist. But this I do affirm: that the greater the fragmentation of our studies under the impact of specialism, the greater the need for the instructed non-specialist as a comprehending and agglutinative factor. I use the phrase 'instructed non-specialist' advisedly; he must be instructed by the specialist at first hand, which is equivalent to saying that he must be instructed in some body such as ours, with auxiliary bodies of comparable purpose.

There is, however, a further issue in this context, an issue which is again far older than the present generation of antiquaries. Our Society, in conferring its Fellowship, has always exercised the right of rejection to a degree unparalleled in other antiquarian bodies. No democratic system of rejection is foolproof, and I do not pretend that our rejections have always been wise ones. But a fresh scrutiny of the last few decades shows that mistakes of this kind have been astonishingly rare. By and large our system has worked; and in consequence, apart from that measure of venerability which age attaches to our second-oldest Royal society, our Fellowship has retained a certain cachet which may be belittled but cannot be ignored.

This quality, however, has on occasion led to certain comparisons which I must now quite plainly label as false and misleading. In particular we have been compared in an adverse sense with our friends and neighbours of the Royal Society properly so-called, founded something under half a century before us. With that eminent Society we have in the past had the closest ties. At one time there was a great overlap in our Fellowship, and the best-remembered of our early Presidents, Martin Folkes, was President of both Societies. But our several functions, though they have varied with varying social and academic circumstance, have never run

along parallel lines; and, as I say, the two sodalities cannot, even in theory, be mutually compared. The Royal Society is, and has long been, a society of professionals, broadly based upon a wide range of natural sciences. Until the present century, archaeology could not be described as a profession at all, and it never will or can emulate any one of the major natural sciences in its professional amplitude. To attempt to restrict our Fellowship, with its single discipline, in any fashion equivalent to the restrictions imposed upon its Fellowship by the Royal Society, with the whole of natural science at its call, would, as I have indicated, reduce our Fellowship at once to less than one-fifth of its present size and to complete and final impotence.

One other central body has on occasion been used by amiable critics as a touchstone of our merit: I refer to the British Academy. This was founded in 1902 as a humanistic counterpart of the Royal Society, which had long failed to subserve the humanities adequately amidst the growing complexity of natural science. It was designed to represent all humanistic research, whether historical, archaeological, philological, philosophical, legal, or economic; to advise the Government in these matters, when called upon to do so; and to represent British humanism on appropriate occasion overseas. Election to its Fellowship, which has not yet reached its maximum of 200, is preceded by rigorous scrutiny on three separate occasions, and it is in fact as professional a body as is the Royal Society itself. Amongst many other functions, it is consulted by H.M. Treasury in the dispensation of funds for humanistic research outside the universities, which remain of course the specific province of the University Grants Committee.

Now the Academy has in practice found it useful to subdivide itself into a number of sections, eleven all told, for the more detailed consideration of matters relating to the principal departments of humanistic knowledge. I need not burden you with more precise particulars, but I mention the general scheme for a reason. It has been suggested by one of our Vice-presidents that, to meet the advancing specialization of knowledge, we should ourselves consider the practicability of a comparable subdivision into units of specific kinds: presumably to deal with topics such as prehistory, classical antiquities, the dark ages, heraldry, and so forth. To this proposal it seems to me that there are three valid objections. First, even in a professional body such as the British Academy it is not always easy to 'categorize' all members; and, in a Society of which four-fifths of the Fellows are non-professional, this problem would appear to be baffling. To postulate small cells or groups within the inchoate and unclassified generality of the *conventus* seems to me to be a counsel of despair. In any case—secondly—the function of these hypothetical subdivisions is surely very much better served by the specialist societies to which I referred earlier in my address: the Prehistoric Society, the Roman Society, and so forth. That is precisely their function, and they serve it, for the most part, admirably. Or again, the correlation and occasional guidance of the provincial societies in their local and national work is carried out excellently by the Council for British Archaeology, which was, let me remind you, constituted by our Society for that very purpose. Then thirdly, and above all, our function has been, and will I hope continue to be, to assemble something of *all* branches of archaeological re-

search within four walls and two covers: in other words, to exhibit visibly and on the grandest scale the essential integrity of human achievement geographically and chronologically at the material level. I hesitate to refer to that remarkable body, the United Nations, as a model of any virtue; but you will not, I trust, misunderstand me if I say that the idea of integration which lies behind that august institution is a right and proper one, and it is one which within the narrow limits of our own studies we should emulate and surpass. We are, here in this room, first and foremost and essentially the general assembly before which the miscellaneous problems of our little world are ventilated and discussed in a common perspective. Of this matter of discussion I now have something more to say.

I have been looking through our lecture-programmes for the last three years, and I have been struck anew with their quality and catholicity. Save for the pre-opted work of our Schools or Institutes of Archaeology in Ankara, Baghdad, Jerusalem, and the Mediterranean, I doubt whether any archaeological discovery of notable importance has been omitted from our list. Geographically, we have ranged from Eire to Nubia. In subject-matter, we have been told of new digging at Stonehenge and the West Kennet barrow, of megalithic and other research in France, of the exploration of prehistoric Malta, of Minoan tombs in Knossos and Greek sites in Chios, of the marvellous revelation of Byzantine mosaics and frescoes at Istanbul, of Roman monuments and sculptures in the Libyan desert, of arms and heraldry, of Carolingian illumination, of the triumphs, trials, and tribulations of Carbon 14, and even of the origin of the Norfolk Broads, which we must now regretfully ascribe to human spoliation rather than to unspoiled nature. We have travelled widely, without forgetting altogether our founder Wanley's words in 1707 that 'the History of a man's own Country is (or should be) dearer to him than that of Foreign Regions'.¹

Nor is this wide and balanced choice fortuitous. It is the result of wide and industrious selection. That little room in which our successive Assistant Secretaries have been enshrined is still the veritable focus of the archaeological world. To it sooner or later—and sooner rather than later—come news of discovery from the ends of the earth, and what does not come of its own volition is studiously sought out. And I would add this. In the selection of our lecturers some special regard is paid to the precious quality of youth. In the three years which I have reviewed, no less than a dozen of our Thursday papers, and some of the best of them, were given to us by young men and women outside our Fellowship. That is as it should be. Burke long ago reminded us that 'the arrogance of age must submit to be taught by youth'. I am tempted to append that other tag of Disraeli's, 'Almost everything that is great has been done by youth.' Indeed I should like to see the bulk of our Fellowship admitted under the age of forty.

But, when all is said, the brightest jewel in our crown is, beyond question, our library. Its efficiency is sustained from three sources: books sent for review, books suggested for purchase or exchange by our persevering librarian from the perusal of numerous British and foreign book-lists, and suggestions tabled by Fellows. Suggestions are reviewed and not rarely amplified by our Library Committee, and

¹ Joan Evans, *History of the Society of Antiquaries*, p. 40.

I have reason to believe that the results of this composite system are satisfactory. If not, the remedy lies with the Fellows; and I hope emphatically that we shall all of us maintain a lively and constant interest in this matter, regarding our library with a proper pride and exhibiting our pride in constructive criticism. In my own experience, our immense collection, supplemented as it is by official or informal access to half a dozen other metropolitan libraries and by a subject-index which is a priceless instrument of research, very rarely indeed falls short of the demands made upon it. Our one serious anxiety is that of future accommodation, but this perplexity lies outside my present theme.

Of our publications both I and my predecessor have spoken in former years. The problem there is solely one of finance. First-class material is available in abundance; only the pence are lacking. Once more I invite your individual interest to our Publications Fund, to which even the smallest contributions under a seven-year covenant are of disproportionate value. Our standard of publication, fortified by the skill of the Oxford University Press, is unsurpassed in the world. Only quantity is lacking, and the remedy once more lies in the hands—and pockets—of the Fellowship.

Thus far I have reviewed our attainment with a measure of complacency which (if I may confess it) is not normal to my nature. In fact, I distrust complacency wherever I find it; and it is with something of a perverse relief that I turn now to a subject on which any sort of complacency is totally out of the question. I refer to that egregious body which we label, grandiosely and optimistically, our 'Research Committee'. My dictionary tells me that the word 'egregious' has two meanings. First, it means 'eminent, distinguished', and certainly we need not quarrel with the eminence and distinction of those Fellows who have served on this Committee. Secondly, it means 'remarkable for bad quality; flagrant; gross; as an *egregious* rascal; an *egregious* ass; an *egregious* mistake'. With equal certainty, this second meaning applies with singular aptitude to the Committee's normal functioning, and I say that as a member of long standing.

The so-called Research Fund, later administered by the Research Committee, was established by Sir John Evans as President in 1889 with admirable intent. But it has never been adequately nourished, and no sustained use has ever been made of it as an instrument of policy. Recently, as the result of a special appeal, it has been somewhat enlarged, and we may share our gratitude to our benefactors with an urgent request for more. Even today, however, £600 a year is not an altogether negligible sum, and, if it is far less than we need, that fact should be an additional challenge to our ingenuity. In plain language, it is high time that our Research Committee initiated a little research.

Let us, however, be fair to this Committee. On two occasions our Presidents have in fact breathed a little momentary life into its carcass, and others have followed suit elsewhere. In the twenties, Sir Charles Peers induced it to survey the current needs of field-research and to plead for a controlled long-term programme based upon them. 'By such means', stated his report,¹ 'the energies of all the archaeological societies and institutions of the country might be concentrated on a definite

¹ *Antiq. Journ.* ix (1929), 349-53.

programme of research, in which all might take part, avoiding side-issues and useless repetitions.' A year or two later, the old Congress of Archaeological Societies attempted the same thing;¹ and a more elaborate survey was produced by the new Council for British Archaeology in 1948.² As a periodical stock-taking this procedure was not without interest, but its practical issue was negligible. More restricted and therefore more practicable was the effort made in 1945 by our President Sir Cyril Fox, when, with the support of unusually distinguished colleagues, he strove with a desperate optimism to revivify the Research Committee after its war-time hibernation. Various proposals were then considered: (1) to examine an Iron Age hill-fort in the Highland Zone south of Hadrian's Wall, such as Stanwick; (2) to excavate completely a motte-and-bailey castle; (3) to fill certain gaps in our knowledge of Roman Britain; (4) to investigate dykes and defensive linear earthworks; and (5) to survey town houses and royal and episcopal palaces of the medieval and sub-medieval periods. Of these projects, priority was to be given to dykes and linear earthworks, and Sir Cyril Fox, the late Mr. B. H. St. J. O'Neil, Professor C. F. C. Hawkes, and Professor W. F. Grimes prepared memoranda on their exploration and recording.³

Now what has happened to this relatively modest programme? At first sight it might seem to have been tolerably effective, in the sense that most of the projects have received some attention since 1945. To take them in the order named: Stanwick has been sampled; two or three mottes have been dug; Professor Richmond, Mr. Graham Webster, Mr. Margary and others have begun to fill in some of the Romano-British gaps; Professor Hawkes has examined linear earthworks at Colchester; and Mr. Pantin, Sir Cyril Fox and others have surveyed medieval and sub-medieval houses with notorious success. But don't let us be fooled by this seeming conformity between precept and practice. Stanwick was eventually explored in special circumstances and without any awareness of the Research Committee's minute; the coincidence was completely fortuitous. The other enterprises have been carried out primarily *under the leadership of those members of the Research Committee who had proposed them to the Committee*. In other words, the Committee's programme merely placed on anticipatory record those projects which at the time happened (and fortunately happened) to be of special concern to their individual proposers. In saying this, I wish in no way to belittle those projects. On the contrary, they were (and are) all of them of the highest interest and importance. But they were, let me repeat, a prophetic record of miscellaneous individual intention, not in any valid sense an over-all controlling policy.

And therein, I would urge, lies the moral of the tale. On the four occasions which I have catalogued, theoretical schemes for long-term research have all failed of their main purpose. And they have failed for two reasons: (a) they were long-term, and (b) they were theoretical. It is almost inevitable that long-term programmes will be

¹ Congress of Archaeological Societies, *First Report of the Research Committee* (1931) (for 1930).

² *A Survey and Policy of Field Research in the Archaeology of Great Britain* (Council for British

Archaeology, 1948). Only Part I of this Survey has been issued.

³ *Antiq. Journ.* xxvi (1946), 175-9; and minutes of the Research Committee, 28th March 1946.

frustrated or diverted by discovery and opportunity. Theoretical programmes break down because, human nature being what it is, the factors of individual training and approach are, in fact, the operative conditions of field-research, and limit it from decade to decade or even from year to year. In other words, planned research, if it is to be more than a dream, must be founded upon a short-term basis and must, above all, be related directly to the capacity, idiosyncrasy, and availability of the limited personnel of the moment. Salvage-work apart (and I am not here concerned with this) we must work from the individual to the problem, rather than from the problem to the individual.

That is the practical lesson of our 1945 scheme, and it is one which I commend for remembrance. But in doing so I am not advocating a purely opportunist policy on the part of our Research Committee. Of opportunist policy, if policy it can be called, we have had enough. At the single annual meeting to which the Committee normally rations itself, we witness year after year a more (or even less) amiable smash-and-grab for the modest sums which the Treasurer is able to put in his shop-window. But I cannot help thinking—indeed I am quite sure of it—that, somewhere between opportunist smash-and-grab on the one hand and castles in the stratosphere on the other, a middle course can be found which will conduce alike to the usefulness and the dignity of our Society. With proper preparation and adequate discussion, if necessary at more than one meeting, it should be perfectly feasible to sort out our ideas and possibilities and to allot to them an intelligent order of priority. And here let me add a word about another aspect of the matter.

In the past this Committee has restricted its inquiries, such as they have been, to excavation. So it was in the beginning, is now, but will not, I trust, endure for ever, world without end. You will not charge me with lack of sympathy for archaeological excavation; nay, I have no hesitation in prophesying that most of our major discoveries will in the future, as in the more recent past, be won primarily from the earth. But excavation is, after all, only a beginning of research, not its sole end. We have been reminded lately, though reminder should not have been necessary, of the increasing need for the systematic recension of the material which already lies scattered in a miscellany of books, papers, and collections, and a new lead has been given by our Fellow, Professor Christopher Hawkes, in the methodical publication of Bronze Age groups.¹ In this matter of recension our numismatists have in fact long pointed the way, and Harold Peake's card-index of bronze implements was, a generation ago, a brave piece of pioneering to which Professor Hawkes has also given fresh and useful attention. Recently a special committee of our Society, under the chairmanship of Dr. Harden, has prepared a corpus of Roman glass found in Britain—a survey instituted under an international scheme. But much—almost everything—remains to be done in this business of compiling corpora. It is a skilled and time-consuming occupation, designed itself to save time and to stimulate thought; a barrack-room fatigue which is nevertheless essential to the well-being of our discipline. And it is one for which we may justly look for guidance from our Research Committee. At present, we look in vain.

There is indeed much that an enterprising Research Committee can do for us,

¹ *Inventaria Archaeologica* (International Congress of Prehistoric and Protohistoric Sciences, 1955-).

and will I hope in future do. Short-term planning in the field may be balanced by long-term planning in this matter of corpora, which, by their nature, need constant amplification and reassessment and may properly become a more or less permanent commitment. Let us expand the current connotation of 'Research Reports' to include them, as they may legitimately be included, amongst our regular research-publications. And let us include also the systematic preparation of archaeological maps, such as those of Roman Cyrenaica and Tripolitania which another *ad hoc* committee of our Society has successfully completed as a part of the *Tabula Imperii Romani*. I may add that this same committee has now in active preparation the equivalent map of the Eastern Desert of Egypt, from first-hand materials supplied by Dr. David Meredith. These projects—the corpus of glass, the Roman maps—show that, in a miscellaneous way, our Society is by no means devoid of enterprise in the matter of serious research. But what I think we should do in future is to muster such enterprise more specifically under our Research Committee, and so to make it clearer to ourselves and to others what research we are in fact doing; in other words, to make ourselves more *research-conscious* than we are liable to be at present. I exclude from this context the very considerable body of heraldic research which in fact goes on daily in our apartments in connexion with the new *Papworth*. Under Mr. Anthony Wagner's direction, this long-term labour is the main charge upon our Croft Lyons Fund and entails the specialized services of a permanent staff and a standing Croft Lyons Committee. I exclude this from the normal purview of our Research Committee only because of its somewhat esoteric character; but it comes well and truly under the heading of 'research' and must not be omitted from our credit side.

Briefly then I would say that our research, though by no means negligible, requires a measure of co-ordination and planned expansion, and that our Research Committee, through *ad hoc* sub-committees, should assume a more general control of it, and should become, in other words, something a great deal more significant than an annual distributor of largesse. It may usefully be reminded that it has a brain as well as a pocket; and we may hope that the former is appreciably larger than the latter.

Finally, there are certain less tangible assets of our sodality which are none the less an appreciable part of our make-up, of a tradition which, like a good lawn, must grow through the years and cannot just be ordered from the stores. Sitting week after week in your high chair, and surveying the serried faces in front of me, I am struck anew by the thought that, whilst the experts are there in force, they rarely constitute more than a quarter of our gathering. With them are happily assembled those lesser folk whose claim is 'merely an attachment to the study of antiquity'. There they are, in their shameless flocks and herds, varying in composition but astonishingly constant in their numbers; ranging widely in age and pre-occupation; week after week listening attentively to expositions of research which in no way spare them, and are not infrequently pretty tough pemmican even to the professors. For I would emphasize this. Here is no question of 'Some Famous Fonts', or 'With the Camera in the Campagna'. Here it is the real stuff, merciless in its minutiae, and on principle *new*, that is served up to us. And we like it. We

thrive on it, and by and large provide in first instance the best audience in the country for the antiquary with new ideas or old ones critically reviewed: an audience sufficiently expert to appreciate with discrimination and at the same time sufficiently unspecialized to demand (if not always to receive) clear exposition.

But even that is not all. We are sometimes accused of being 'too much like a club'. In so far as that affirmation is true, I welcome the fact as a precious part of our inheritance. Whilst our doors are wide open (as our lecture-lists show) to those innovations which are necessarily the product of specialists and specialist-groups, we are also—and I say this without unnecessary snobbism—the humble heirs, as they may not always be, to the values which, in however dilute a form, have trickled down to our time from the receding ages of Humanistic Education. The study of antiquity, the study of human achievement, of a surety implies the scholar in his ivory tower, with a wet towel round his head and the blind pulled down. But it implies more than that; it implies also the currency of educated minds in chosen contact, whether in this room or in less formal circumstance. The sterling merit of our ballot-nights is of this kind. Mistakes, as I have admitted, have been made by these democratic assemblies, but they have been very very few; they are the mistakes to which any democracy is prone. And these gatherings, three or four a year, provide, not least, an opportunity for our Fellows, from the provinces as from the capital, to meet one another on their privileged ground: if you like, in the environment of a club. There are amongst us those who, on occasion, carry this interchange yet further, by the brazen act of dining together. More than one of our learned societies began at the dinner-table, ours amongst them. Most of our learned societies today, from the Royal Society downwards, retain their dining-clubs. And as one who has for thirty years dined pretty regularly in this fashion, I can testify to two things: first, that there is in these little festivities no element of the

Intrigues half-gather'd, conversation scraps,
Kitchen-cabals, and nursery mishaps,

which entirely ignorant critics have now and then ascribed to them; and secondly that, on the contrary, they consist of professional and less professional antiquaries whose devotion to our Society is their bond and is not weakened by 'honest talk and wholesome wine'.

In short, we are a tree with many branches. On this April day the leaves are once more green upon them, as I hope and believe they will be green in many Aprils yet to come. I, for one, have little sufferance for those who would turn us into a telegraph-pole.

ON SOME BUCKETS AND CAULDRONS OF THE BRONZE AND EARLY IRON AGES:

THE NANNAU, WHIGSBOROUGH, AND HEATHERY BURN BRONZE BUCKETS AND THE COLCHESTER AND LONDON CAULDRONS¹

By PROFESSOR C. F. C. HAWKES, F.S.A., and MISS M. A. SMITH

THE purpose of this paper is to present five large prehistoric bronze vessels, from Wales, Ireland, and the north and south of England, found at various dates from the early nineteenth century to 1932, but published as yet imperfectly or not at all, and to consider, with reference to their affinities abroad, their significance for these islands' Late Bronze and earliest Iron Ages. The starting-point for any such study must in general be the article in *Archaeologia*, vol. lxxx, by the late E. T. Leeds.² In the twenty-seven years since he wrote, new finds and new work have indeed supplemented and somewhat varied his conclusions, but they leave us still deeply in his debt.

A. THE NANNAU AND WHIGSBOROUGH (OR 'DOWRIS') BUCKETS

First, there are two vessels, of the high-shouldered sort called buckets,³ which require treating side by side. One is from Wales, and was not known to Leeds; the second is that from the well-known 'Dowris' hoard, found near Whigsborough in central Ireland.

THE NANNAU BUCKET

This bronze bucket, the first recorded of any such kind from Wales, is a possession of Brigadier C. H. V. Vaughan, D.S.O., D.L., J.P., at Nannau Park in Merionethshire, some two miles NNE. of Dolgelly. It was found about 1880 on the Nannau property, in or in the immediate vicinity of the park.⁴ This lies on the east bank of the lake Llyn Cynwch, between 700 and 800 feet above sea-level, on the western slopes of the mountain (Moel Offrwm) overlooking the head of the Afon Mawddwy estuary, which reaches the sea in Barmouth Bay some seven miles farther WSW. The exact site of the discovery cannot now be identified, but investigations made in the summer of 1952 at Nannau with the then owner, the late General John Vaughan, C.B., by our Fellow Mr. W. J. Hemp, assisted by our

¹ This paper is published with the aid of a grant from the Council for British Archaeology.

² *Archaeologia*, lxxx (1930), 1-36.

³ This usage came in early in the present century,

and is now standard (German *Eimer*). For *situla*, see p. 138, n. 3 below.

⁴ British National Grid ref. SH 74 20.

Fellows Mr. C. A. Gresham and Mr. C. A. Ralegh Radford, leave no doubt of its authenticity; the bucket was apparently dug up unassociated. It was to Mr. Hemp that the Society was indebted for its exhibition at the meeting of 24 January 1952,¹ and at Mr. Hemp's invitation that the writer of these first lines (C. F. C. H.) then read notes on it, starting from which he and his collaborator have been able to prepare this paper.² Through the willing co-operation of our Fellow Mr. J. W. Brailsford, it was possible to arrange also for the bucket to be photographed (pl. xx) and drawn by Mr. C. O. Waterhouse, M.B.E. (fig. 1), at the British Museum.

Description. The bucket is somewhat damaged around the shoulder and its rim slightly distorted from the horizontal (pl. xx a), but its profile is on one side complete, and below the shoulder its body and base are almost wholly intact. It is made of bronze sheet, about 0.7 mm. thick, and is altogether in good chemical preservation, with a good dark yellow-brown surface. With its rim restored to the horizontal as in fig. 1, A, it stands 19.4 in. high (46.8 cm.); its external diameter at the lip is 14.75 in. (37.5 cm.), at the neck 13.55 in. (34.3 cm.), and at the shoulder, which is boldly rounded, 16.45 in. (42 cm.). The rim, everted in a slightly convex curve above a pronounced but narrow neck-hollow, stands 1.4 in. high (3.5 cm.). This includes the lip, 0.28 in. broad (7 mm.), which is bent out and round into a tube to grasp a stout bronze wire, 4.5 mm. in diameter, running thus round the whole of the rim to stiffen it. The bucket's whole upper portion is made of two equal sheets of bronze riveted together along two opposite vertical seams, and riveted horizontally below into the top of a single tub-shaped lower portion, with a base 8.65 in. in diameter (19.5 cm.), hammered up into a dish-shaped hollow underneath, 0.92 in. deep (2.3 cm.), inside a hammer-formed foot-ring $\frac{1}{2}$ in. wide (1.27 cm.). This is reinforced externally, at the cardinal points, by four plates of bronze sheet about 1 mm. thick, 3 in. long (7.6 cm.), and of wide 'H' form, curved, and bent along their median bar (just over 1 in. wide, or 2.55 cm.) to fit the bucket's base-angle, and having each of their terminal bars running for about 0.92 in. up the side (2.3 cm.), and about 1.55 in. (4 cm.) over the foot-ring radially on to the dish-shaped base, each end of them being fastened with a rivet, 4.5 mm. in diameter, with a broad flat head on the inside, 9 mm. in diameter. The rivets round the top of the lower portion of the bucket are of the same size and set likewise; those up the two vertical seams above are also of the same size, but have their heads outside. At the top of these seams is fixed a pair of handle-carriers, made of bronze sheet about 0.8 mm. thick. They have broad rectangular lower terminals 3.2 by 1 in. (8 by 2.55 cm.), fixed to the shoulder by five rivets with external flat heads 8 mm. in diameter, then narrowing to 1.7 in. (4.3 cm.) where bent out in a bold curve over the neck and in across the rim, to broaden out on its inside into upper terminals about 4 by 0.7 in. (10.2 by 1.65 cm.), fixed to the neck by three rivets set likewise, and of the same size as the others. In these carriers rides freely a pair of cast bronze ring-handles, 3.75 in. in outside diameter (9.5 cm.), and of diamond-shaped cross-section, 0.37 by 0.2 in. (1 by 0.58 cm.).

Further to this description, the following technical observations on the bucket's manufacture have been kindly contributed by Mr. Herbert Maryon, F.S.A.

The lower half of the bucket was raised from a stout disc of bronze. The principal tool employed was not a metal hammer, but one of horn or wood. This point is clearly demon-

¹ *Antiq. Journ.* xxxii, 128.

² Its completion has been materially assisted by a Leverhulme Research Fellowship, awarded in 1955 for studies of which this forms part; we must

express our gratitude to the Leverhulme Trustees for their generosity. It is now published with the aid of a grant from the Council for British Archaeology.

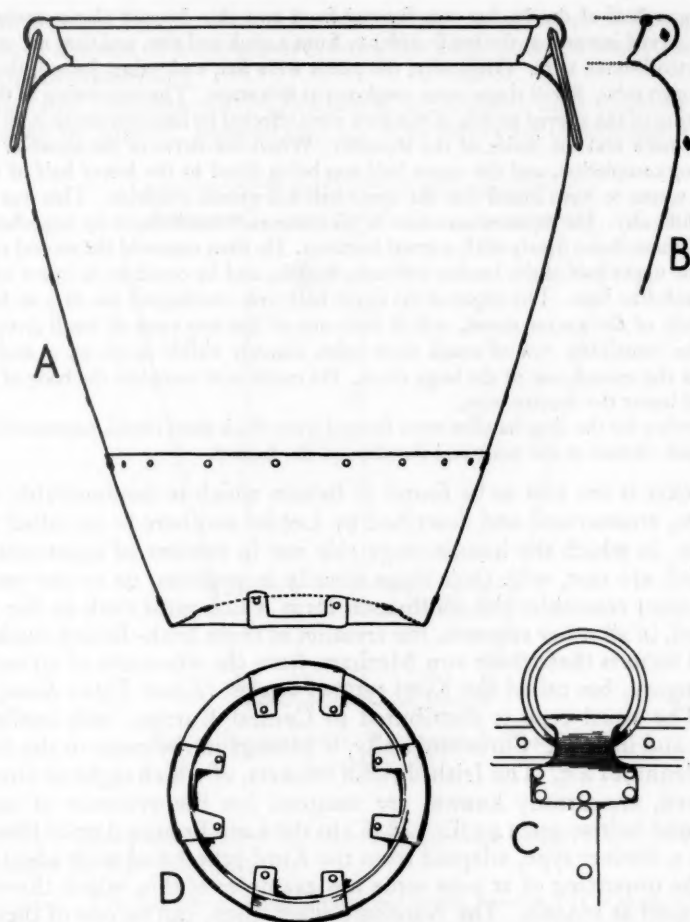


FIG. 1. Bronze bucket, Nannau, Merionethshire ($\frac{1}{2}$). A. Elevation (with section of base dotted). B. Section, showing handle. C. Elevation of handle. D. Plan of base.

strated by the fact that there still remain considerable traces of the pleating of the metal round the edge and on the surface of the disc (pl. xx *b*), which are a result of the reduction in its circumference when it was being hammered from a flat into a tub-like form. If a metal hammer and stake had been employed, the pleats would have been hammered out, and there would have remained no ribbed or wavy surface: the waves would have been hammered flat.

When full of water or other fluid the bucket would be very heavy. The multi-angular plates riveted on the bottom were evidently designed to protect the lower rim or basal edge of the bucket, on which it stood, from wear.

The upper half of the bucket was formed from two thin bronze plates riveted together. They are curved inwards at the top in order to form a neck and rim, and they are stiffened by a stout inserted bronze wire. Originally, the plates were flat, and, when joined, they formed a length of open tube. Small rivets were employed at this stage. The narrowing of the neck and the formation of the curved profile of this part were effected by hammer-work both on the outside of the neck and the inside of the shoulder. When the curve of the shoulder and lip was approaching completion, and the upper half was being fitted to the lower half of the bucket, the smith seems to have found that the upper half had grown too wide. This was to him not a serious difficulty. He replaced one row of his temporary small rivets by large-headed rivets, and closed them down firmly with a metal hammer. He then removed the second row of small rivets. The upper half of the bucket was now flexible, and he could fit its lower edge into the top of its tub-like base. The edges of the upper half now overlapped too far; so he cut off a vertical strip of the excess metal, which bore one of the two rows of small rivet-holes. He ignored the remaining row of small rivet-holes, scarcely visible in pl. xx a, and punched a new set for the second row of the large rivets. He could now complete the body of the bucket, and fit and insert the bronze wire.

The carriers for the ring-handles were formed from thick sheet metal, hammered and chased to form, and riveted to the neck and shoulder of the bucket.

This bucket is the first to be found in Britain which is demonstrably not of the native series, enumerated and described by Leeds¹ and here to be called the Irish-British type, in which the handle-rings ride not in carriers of sheet-metal, but in staples which are cast, with their rings already in position, on to the vessel's rim. Instead, it most resembles the continental form which must rank as the prototype that inspired, in all other respects, the creation of these Irish-British buckets. This continental form is that which von Merhart, from the site-name of an early find of one in Hungary, has called the Kurd type of bucket (*Eimer Typus Kurd*, or *Kurd-Eimer*).² The Kurd type is distributed in Central Europe, with outliers in the north-west and in Italy. Chronologically, it belongs in the main to the first half of the 1st millennium B.C. The Irish-British buckets, of which eight or nine, perhaps ten or eleven, are already known, are assigned (on the evidence of associations to be reviewed below, pp. 143 ff., 148 ff.) to the Late Bronze Age of these islands. They form a distinct type, adapted from the Kurd type;³ and such adaptation presupposes the importing of at least some few examples of this, which thereupon will have been used as models. The Nannau bucket, then, can be one of these imports (pp. 137-8; cf. 147); and its date, within our Late Bronze Age, will give a *terminus post quem* for the Irish-British series.

THE WHIGSBOROUGH (OR 'DOWRIS') BUCKET

Our second vessel is the nearly complete bronze bucket from what has most often been called the 'Dowris' hoard, found about or not long after 1825 in potato-digging somewhere close to Whigsborough, county Offaly,⁴ near Lough Cowra

¹ *Archaeologia*, lxxx, 15 ff. (cf. 2-4), 35-36.

² Gero von Merhart, 'Studien über einige Gattungen von Bronzegefäßen', in *Festschrift des Röm.-Germ. Zentralmuseums in Mainz* (1952), ii, 1-71; section on these buckets, 29-33 (with map 5); list,

69; drawings, Taf. 16-19.

³ Von Merhart's *Britisch-Irische Sondergruppe*, *op. cit.* 33; list (entitled *Englisch-Irische Gruppe*), 70.

⁴ Formerly designated King's County.

and to the north of Birr, in central Ireland rather east of the river Shannon.¹ Along with most of the rest of what survives from this large hoard, it was acquired in 1854 by the British Museum.²

Through the kindness of Mr. Brailsford, we are able here to illustrate it from a new drawing by Miss L. Buswell (fig. 2). The following description combines the

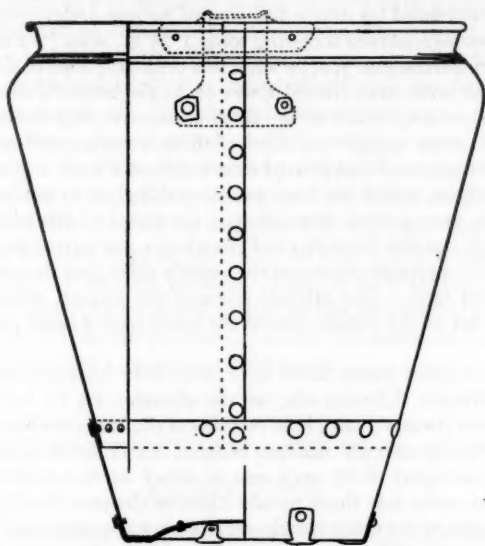


FIG. 2. Bronze bucket, Whigsborough ('Dowris'), Co. Offaly. (†)

results of our full examination of it, and the technical observations kindly made for us once more by Mr. Maryon.

Description. The bucket is almost intact, but for its handles. It is made of bronze sheet, about 0.6 mm. thick; its chemical preservation is fair, with brownish surface which in patches is corroded with burnt soot. It stands just 16 in. high (40.64 cm.), its external diameter at the lip is 13.5 in. (34.3 cm.), at the neck 12.9 in. (32.8 cm.), and at the shoulder, which is bluntly angular, just 15 in. (38.1 cm.). The rim, everted at some 30° above an obtuse neck-angle, stands 0.8 in. high (just over 2 cm.), inclusive of the lip, which is 0.25 in. broad (6 mm.) and

¹ For this, much the largest bronze hoard known from Ireland, and for its older literature, see E. C. R. Armstrong, in *Proc. R. Irish Acad.* xxxvi (1922), C, 134 ff.; H. S. Crawford, in *Journ. R. Soc. Antiq. Ireland*, liv (1924), 14 ff.; R. A. S. Macalister, *The Archaeology of Ireland*, 1st ed. (1928), 137-8; 2nd ed. (1949), 221-3. The place was in any case close to Whigsborough, and was apparently either Dooros-

heath, which lies south-west of it—whence the inaccurate name 'Dowris'—or else lay north-west of it, towards the lake but located otherwise only by a name 'Derreens', which is itself not now locatable.

² Reg. no. 54, 7-14, 313 (Cooke colln.); Leeds, *Archaeologia* lxxx, 36, list no. 9 (with further references).

bent out and round into a tube to grasp a bronze wire, 4 mm. in diameter, running all round to stiffen it. Round the shoulder, between $\frac{1}{2}$ and $\frac{1}{4}$ in. below the neck-angle, run two low 'shoulder-ribs' or corrugations, equal and contiguous, each about 0.2 in. wide (5 mm.).

The bucket's whole upper portion is made of two equal sheets of bronze riveted together along two opposite vertical seams, and riveted horizontally below into the top of a lower portion raised from a single sheet, tub-shaped with side 3.5 in. high (8.9 cm.), and base about 7.5 in. in diameter (19 cm.), hammered up into a dish-shaped hollow underneath, about 0.75 in. deep (1.8 cm.), inside a hammer-formed foot-ring some 1.25 in. wide (3.2 cm.).

The foot-ring is reinforced (fig. 3, *a*) by what was originally a set of six equally-spaced angle-plates set radially, each with strap riveted above on to the bucket's side and beneath on to its basal hollow, and disc centre, thickened by three concentric ring-mouldings, set on the foot-ring for the bucket to stand upright on. One of these is represented only by its nether strap-end; another has been taken off and refixed to one side of a fresh angle-plate, an inferior and broader copy of the others, which has been put on at this place to hold a patch, along with the refixed plate beside it, over a crack that has split the metal of this part of the bucket's base-angle. The base-angle has also been patched elsewhere; and a great many repair-patches have been riveted over other damaged places on the vessel's sides (not shown in fig. 2), their rivets hammered flat on both faces. The original rivets of the bucket, which along the seams are large, are hammered flat on the outside but on the inside have a small protruding head, bluntly conical in form.

At the top of the vertical seams there have been twin handle-carriers of sheet-metal, of which only vestiges remain. On one side, on the shoulder 2.5 in. below the lip (6.35 cm.), two rivets 2.75 in. apart (nearly 7 cm.) hold remains of the lower corners of one handle-carrier, which must have curved up over the neck, to be fixed to its interior, $\frac{1}{2}$ in. below the lip, by two more rivets, set 3.25 in. apart (8.25 cm.), one of which holds a small piece remaining of its upper corner. On the other side there remain likewise the two shoulder-rivets, the left-hand one holding a small piece of the other handle-carrier's lower corner, and one of the upper ones, holding a disc-like fragment of its upper corner. Beneath the lip outside here are traces of what might possibly have been metal run on to affix some substitute or reinforcement for the handle-carrier, but are merged in corrosion with burnt soot; on the opposite side, where there is a blob of run-on metal outside between the upper rivets, and another inside holding a short metal strap, which runs down to the neck and reinforces the top end of the seam, the latter anyhow seem modern, and all have been omitted from fig. 2. The approximate form of the handle-carriers, however, has been indicated there; and it may be supposed that these carried ring-handles like those of the Nannau bucket.

In the first account of the hoard to give a description of this bucket, written in 1849 by its then owner T. L. Cooke,¹ he stated that its handles had been broken off 'by the persons who found it', i.e. by the potato-diggers; this seems quite certainly

¹ *Proc. R. Irish Acad.* iv, 423 ff.; bucket, 425. Cooke lived at Birr and had acquired it and most of the hoard, which passed from him to the British Museum five years after this. Mr. H. W. M. Hodges, in his paper on Irish bronze hoards in *Ulster Journ. of Arch.* xx (1957), very kindly shown to us by him in advance of publication, regards the Dowris bronzes as 'largely a collection of scrap to be re-used by a bronze-smith' buried on what he suggests was a habitation-site of the period,

whence its discoverers may have adulterated the collection with bronzes found elsewhere. There is nothing positive to support this view, but if correct it would still leave the Dowris assemblage a unity as acceptable as that of the Heatherly Burn Cave finds (p. 149 below). Our treatment of it as essentially unitary will be found supported below by independent evidences that its chief components are all of the late eighth or earlier seventh centuries B.C. (pp. 151-60, 189).

untrue—the hoard was lying in peaty soil: handles found in position and then wrenched off would leave clear marks on the bucket's rim and shoulder—and in fact to be a false inference from the presence also in the hoard of a detached cast bronze staple from the handle of an otherwise absent cauldron (Leeds's no. 30). For Cooke declared that this was one of the handles of the bucket, inside which, accordingly, he used to keep it. Later, it was actually fixed, by means of a neatly drilled hole and copper wire, on to the rim of the bucket, which, in due course, was photographed with it in this position for the British Museum *Bronze Age Guide*.¹ The truth about this unfortunate piece of botching was pointed out by Leeds,² and the Museum subsequently took the staple off. Leeds did not, however, consider what handles the bucket had really had; these, as our description has now demonstrated, must have resembled those of the Nannau bucket, with riveted carriers made of sheet-bronze. This bucket also, therefore, belonged not to the Irish-British but to the continental Kurd type. The hoard, as is notorious, belongs characteristically to the latter half of the Late Bronze Age in Ireland. In that period, then, imported Kurd buckets reached Ireland as well as Britain. That is only to be expected, since Ireland is agreed to have been the primary home of the derivative Irish-British bucket series. To the buckets of that series, then, and to the mode and chronology of their relation to the Kurd type, we can now go forward.

B. IRISH-BRITISH BUCKETS AND THE CONTINENTAL KURD TYPE

In general form and technique of manufacture, Irish-British buckets are modelled on continental imports of the Kurd type, such as the Whigsborough and Nannau buckets. Their first importation, indeed, gives a likely *terminus post quem* for the start here of native sheet-bronze working altogether; and it will presently appear that this notion is not contradicted by the other class of bronze vessels prominent in this period, namely its cauldrons.

Among the continental *Kurd-Eimer*, Merhart has been able to distinguish³ an earlier group, belonging to the Urnfield period in its stages preceding the Iron Age but called 'Hallstatt A' and 'Hallstatt B',⁴ and a later group which is truly Hallstatt-

¹ 1st ed. (1904), pl. iv, 2; 2nd ed. (1920), pl. 2. Hence Armstrong's drawing, *Journ. R. Soc. Antiq. Ireland*, liv, 10, fig. 1; and Merhart's, *op. cit.*, Taf. 18, 2.

² *Archaeologia*, lxxx, 34, n. 1, to the cauldron-staple no. 30; of the bucket, he merely declared its handles lost, supposing them to have been of the Irish-British type with cast staples: *ibid.* 36, on bucket no. 9.

³ *Op. cit.* 29-33. The Central Italian finds belong wholly to the later group; see further below.

⁴ The Childe-Hawkes attempt, in *Proc. Prehist. Soc.* 1948, to rename these 'Bronze E' and 'Bronze

F' (as being industrially still Bronze stages like Bronze A-D) encounters the difficulty that 'Bronze Age' in South German terminology has come to mean 'Pre-Urnfield Bronze Age', so that its extension to cover Urnfield stages is felt as a contradiction in terms. Yet it is surely undesirable to use the same word 'Hallstatt' for pre-Iron Age Urnfield stages as for the Iron Age Hallstattian: that there is a cultural continuity is true, but it is not cultural identity. The evident solution is to number the Urnfield stages independently both of Bronze and of Hallstatt: it must naturally wait for agreement on what numbers they should get.

ian, i.e. of the Iron Age in its stages called Hallstatt 'C' and 'D'.¹ Morphologically, the Nannau bucket, in its high-set, boldly rounded shoulder and near-conical body, is most closely matched on the Continent in the cemetery of Hallstatt itself, from grave 504, which in date is Hallstatt C. The bucket there deposited² resembles that from Nannau also in the absence of corrugations encircling the shoulder just below the neck, which are in Merhart's view a 'classic' feature of the type.³ However, our bucket lacks one structural feature which that one incorporates, namely, the low-walled base-piece (*Bodenschale*) which Merhart finds typical of his Hallstattian group, and which stands in marked contrast to the Nannau tub-shaped base-piece. The Nannau rounded shoulder, moreover, is more characteristic of Urnfield buckets than of the Hallstattian group, in which it is a survival; the form that is invariably late has a sharply angular shoulder. Turning to the ring-handles of the Nannau bucket, we find that these on the Continent appear only occasionally. Merhart ascribes two buckets with them from Hungary—Narosvécs and Hosszúpályi⁴—to the Urnfield period; accordingly, their use can have begun within the earlier group of *Kurd-Eimer*. There is indeed perhaps some uncertainty about this dating while correlations for stages of the Hungarian Late Bronze Age remain, as at present, rather indeterminate. It is none the less clear that the pendent rings which sometimes occur on buckets of the later series, as at Hallstatt itself (graves 573 and 504),⁵ are not exact analogues for the Nannau ring-handles. The Hallstattian rings are most often ornamental attachments, hanging from the boldly-arched ribbon handles which served for lifting the vessels—and of which the handle-carriers of such as the Nannau bucket are flattened and narrowed versions, made so to suit the ring-handles, which offered an alternative to the ribbon form. On balance, therefore, the typological features which the Nannau bucket displays relate it more closely to Kurd buckets on the Continent than are of Urnfield age, than to the subsequent Hallstattian ones. And size is no obstacle to this conclusion: the earliest buckets indeed are small, as are some later ones, but dimensions comparable with what we have seen in the case of Nannau were already being attained before the end of Late Urnfield times (the *jüngere Urnenfelderzeit*). The reconstructions of buckets from St. Kanzian (Škocijan, inland from Trieste), for example, which are of this age, reach 50 cm. in height.⁶

A 'Late Urnfield' date cannot be later than the eighth century B.C. To British

¹ These are C and D because A and B have been used already for the preceding Urnfield stages; in terminologies without this peculiarity, they are just 'older' and 'younger' Hallstattian, or Hallstatt I and II.

² Merhart, *op. cit.*, Taf. 17, 1.

³ For their persistence on certain later *situlae*, see *ibid.* 35–38. In strict language a *situla* is a high-shouldered bucket with an arc-shaped handle, hooked into loop-attachments; these are prominent in Italy, where this Latin name was first bestowed on them in the nineteenth century. They are, of course, derived from *Kurd-Eimer*, and an Italian will natur-

ally call those also *situle*; yet the name's associations are everywhere predominantly Iron Age, and we have purposely avoided using it for our Kurd and Irish-British buckets.

⁴ *Op. cit.*, Taf. 16, 5–6.

⁵ *Ibid.*, Taf. 16, 9; Taf. 17, 1.

⁶ J. Szombáthy in *Mitt. der Prähist. Komm. der Kais. Akad. der Wissenschaften*, ii, 2 (Vienna, 1913), 161–2 (figs.), whence now F. Starč in *Zbornik Filozofske Fakultete*, ii (Ljubljana, 1955), 115, 143, 158, Taf. 11. For the site see pp. 139–40, with n. 1.

readers, a date centred on that century may appear somewhat early for any bucket, like this from Nannau, which must stand among the prototypes of the Irish-British buckets. Of the 'Dowris' bucket, to which we shall return directly, the same thing may be said. The definitive presentation of British and Irish sheet-metal vessels, buckets as well as cauldrons, has been E. T. Leeds's paper of 1930; and in this, as regards the buckets, what was stressed was their similarity to those of the Italian Iron Age. A particular point of resemblance noted by Leeds was the use of strengthening base-plates, which he illustrated above all from the Tomba del Duce at Vetulonia.¹ The date of this Etruscan tomb, about or soon after 650 B.C., suggested a currency for our buckets in the second half of the seventh century. Further, Leeds considered that on the Tomba del Duce bucket the plates, though riveted on to its base, had no form of attachment to its sides, such as is afforded by the upper terminal rivet of an angled British or Irish base-plate—an 'angle-plate', as we may call it. Following his interpretation, some have ascribed the development of this securer angle-plate explicitly to British or Irish invention.² Outside Italy, Merhart cites two normal Kurd buckets with base-plates, from the Choryn find in Poland (our sketch fig. 3, B is from what seems the only published illustration)³ and from a barrow near Aichach in Upper Bavaria, and also a tall and handleless variant of the type from a barrow at Au, near Rehling in the same Aichach district (fig. 3, A). The date of the Choryn find is equivalent to Late Urnfield, or Hallstatt C at latest, but both the Bavarian vessels have associations as late as Hallstatt D (sixth-fifth century B.C.).⁴ Another tall handleless bucket with these plates from Stična (Sittich) in Slovenia, and a small bead-rimmed one from Novo Mesto (Kandija, formerly Rudolfswerth), are both likewise of Hallstattian age.⁵ Yet all these have only the simple form of plate riveted through the base alone, so that if the British buckets with angle-plates are to be thought 'developments' from this continental series, their date might seem to be depressed still lower than by Leeds's Italian correlation.

It is clear, however, from the more elaborate H-shaped base-strengtheners on the Nannau bucket, that some forms of angle-plate were in fact known on the Continent from which it came. Those are of sheet-metal; but in addition, there is a very exact prototype on the Continent for the angle-plates made alternatively by casting, which the Irish-British smiths took up. Though published in 1913, its significance has passed unrecognized. In the seemingly votive deposit in the Fliegenhöhle cave at St. Kanzian, east of Trieste, there were small moulded discs, set between terminally-riveted straps, which were published merely as bronze 'ornamental attachments',

¹ *Archaeologia*, lxxx, 20-22, with pl. ix (T. del Duce) and fig. 7 (base-plates from Talamone, in Ashmolean Museum, Oxford); dating, 28, prototypes not later than 650, our buckets modelled on them thereafter, but before 600.

² As did C. F. C. H. in *Arch. Journ.* ciii (1946), 10, on the base-plates from the Bagmoor hoard, N. Lincolnshire.

³ Kindly provided by Prof. v. Merhart; literature in his *op. cit.* 30, and E. Sprockhoff, *Zur Handelsgeschichte der germanischen Bronzezeit*

(1930), 93, 132-6.

⁴ Merhart, *op. cit.*, 31-32: Aichach (Taf. 17, 6) with iron dagger like that from the late grave 696 at Hallstatt; 36-38: Au (Taf. 22, 9) with ox-handled bronze jug (22-26; Taf. 14, 5). We are indebted to Prof. v. Merhart and the Staatssammlung at Munich for our fig. 3, A. The Italian finds are documented in his list, 69.

⁵ Starč, *op. cit.* 116-17, 145-8, 158-60, Taf. iv, vi.

but which really must belong, as angle-plates, to the bases of the fragmentary Kurd buckets from the deposit which have been already mentioned (fig. 3, D).¹ Fragments of torn sheet-bronze still adhere to some of their rivets. The decorative mouldings on the central discs include a central pellet, a four-spoked wheel, and combinations of central pellet and concentric rings. The concentric rings are matched on the precisely similar angle-plates on the base of the complete bucket from the Whigsborough or 'Dowris' hoard in Ireland, which we have just described (fig. 2; and cf. figs. 3, D and E). We have explained how this bucket's true nature was disguised by the misleading representation of it in the British Museum *Bronze Age Guide* of 1904 and 1920, where it was shown with the cast bronze cauldron-staple, found loose in the hoard, perching on its rim.² We have demonstrated that it was not made with cast bronze staples for its handles, like those of Irish-British buckets, but instead displays rivet-holes, both on rim and shoulder, to attach two sheet-bronze ribbon handles, or handle-carriers like those of the Nannau bucket, as in the continental Kurd type. Moreover, the cone-shaped heads of its remaining rivets, set facing inwards, are of the type adopted in the earlier part of the Late Urnfield period on the Continent, and there utilized in the attachments of the ribbon handles of Fuchstadt beaten-bronze cups.³ The evidence for ribbon handles, or handle-carriers, on this 'Dowris' bucket, together with the two corrugations round its shoulder which we have remarked upon already, show that it is to be presumed an import from the Continent, where its angle-plates have now found their parallel also, in the St. Kanzian 'attachments'.

Our ascription of the Nannau bucket on typological grounds to a Late Urnfield source on the Continent is thus borne out by the Whigsborough or 'Dowris' bucket. The deposit in the Fliegenhöhle at St. Kanzian—an accumulated mass of material thrown down an unscaleable precipice inside the cave, and presumably votive (the cave was not otherwise accessible)—includes several weapons of iron, but nothing that is as late as Hallstatt C. It belongs to the final phase of the Late Urnfield period, the phase termed Hallstatt Bii—or, in the terminology suggested now by some German scholars, Biii. Now it is most unlikely that it would not have been enriched by objects proper to Hallstatt C if deposition had gone on after the start of that stage of culture, introducing the full Central European Iron Age; for St. Kanzian lies at the margin of the rich East Hallstatt region (*Osthallstattgebiet*), including Carniola, that is, much of modern Slovenia, where Hallstatt C culture

¹ Szombáthy, *op. cit.* (p. 138 above, n. 6), 156 (figs.), 161; not in Starè (same note). The place, St. Kanzian in the Austrian nomenclature of those days, was next included in Italy and called San Canziano; it is now just in Yugoslavia, and its Slovene name Škocijan has become official.

² Above, pp. 136–7, with notes 1, 2.

³ Sprockhoff, *Zur Handelsgeschichte der germanischen Bronzezeit*, 67; visible in Taf. 13, b; and in cup 10 in the new find of Dresden-Dobritz: W. Coblentz in *Arbeits- u. Forschungsberichte zur sächsischen Bodendenkmalpflege*, 1950–1 (Dresden, 1952),

135 ff., 144, Abb. 10 and Taf. 27; technical description, 169. These can be seen as the small-sized cups to which the large-sized Kurd buckets technically correspond.

Also, though no use of conical rivets on buckets is instanced by Merhart, a published illustration of a Late Urnfield *Kurd-Eimer* from Absberg-Bierbaum in Lower Austria shows a pair fixing the handle inside the rim, in the manner of the Fuchstadt cups (Willvonseder in *Niederdonau, Natur und Kultur*, Heft 6, 1940).

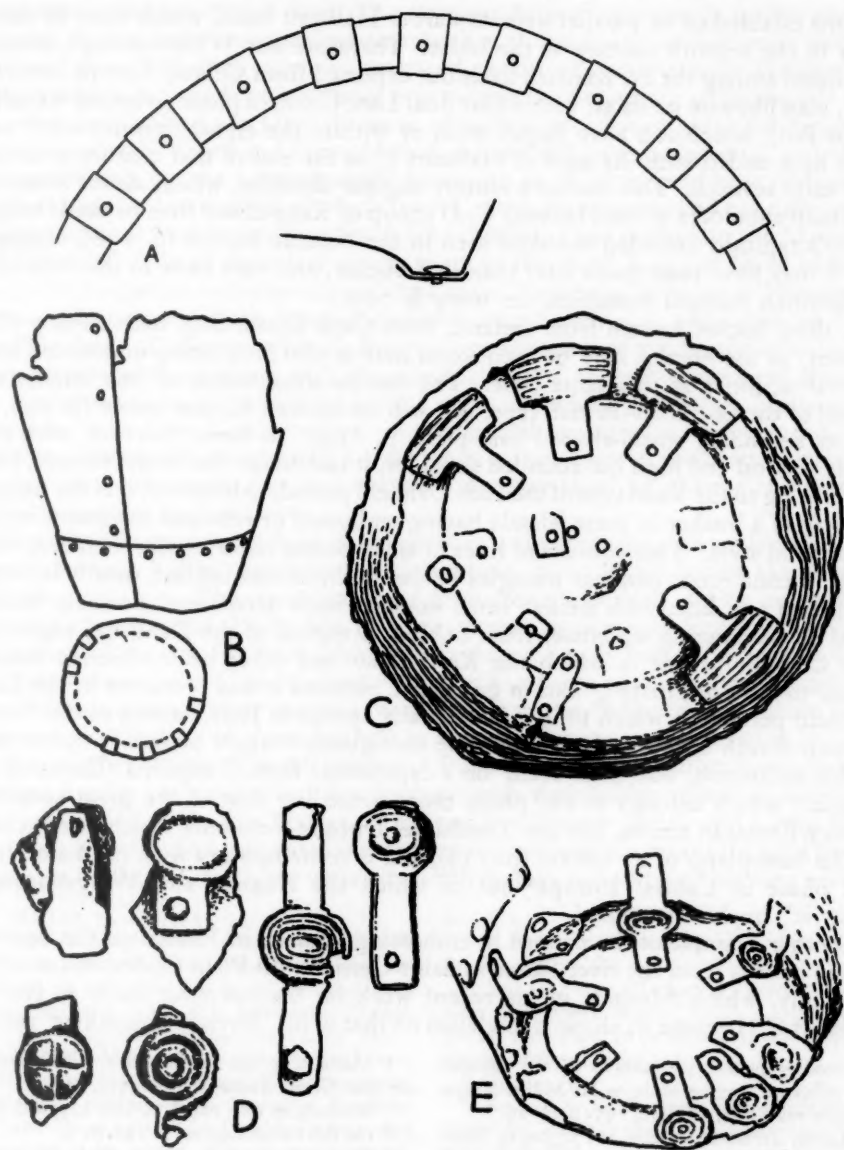


FIG. 3. Base-plates of bronze buckets. A. Au, Kr. Aichach, Bavaria (after von Merhart) (1). B. Choryn, Koscian, Poland (after *Przegląd Arch.* ii, 29, fig. 7) (1:12.5). C. Dowris II, Co. Offaly, Ireland (after Leeds). D. Škocijan—St. Kanzian—San Canziano, Western Slovenia (after Szombathy) (2). E. Dowris I, Co. Offaly, Ireland (after Leeds).

became established in parallel with its start at Hallstatt itself, which must be dated early in the seventh century at the latest. Therefore our Whigsborough bucket, paralleled among the St. Kanzian finds but exported from Central Europe into Ireland, may likewise be dated within that final Late Urnfield phase (whether we call it Bii or Biii), which can have begun with, or within, the eighth century B.C.,¹ and must have ended with the start of Hallstatt C, at the end of that century or in the very early seventh. This bucket's bluntly angular shoulder, which stands nearer to the sharp shoulders of the Hallstatt C-D group of *Kurd-Eimer* than to the Urnfield group's typically rounded shoulder seen in the Nannau bucket (p. 138), suggests that it may have been made later than that bucket, and very close to the Urnfield/Hallstattian cultural transition, i.e. towards 700.

A third bucket known from Ireland, from Cape Castle Bog, near Armoyn (Co. Antrim) in the north,² may be mentioned here as also illustrating undoubted continental affinities at this same time. The handle-attachments of this bucket are indeed of the cast Irish-British type, and will be noticed further below (p. 147, as will its secondary wheel-shaped base-plate, p. 153). In form, however, with rim nearly vertical and high but rounded shoulder, it resembles that from Nannau, thus conforming to the *Kurd* type of the Late Urnfield period. Moreover, it is the unique example of a bucket in these islands having embossed or repoussé ornament in the continental style. This consists of lines of small bosses covering the shoulder, with a row of contiguous pendent triangles below, outlined and infilled, mostly in ranks parallel to one side, with similar small bosses. Such decoration, done on beaten metal by hammering up bosses from behind, is typical of the Danubian region of East Central Europe in which the *Kurd-Eimer* and other beaten-bronze vessels appear to have originated,³ and in geometric patterns it was prevalent in the Late Urnfield period, by which time it had already spread to Italy, as well as the North German-South Scandinavian area.⁴ The contiguous-triangle pattern is rather rare in this technique, but does occur on a cap-helmet from Tarquinia (Corneto) in Etruria,⁵ which belongs to the phase there preceding that of the great seventh-century Etruscan tombs, like the Tomba del Duce at Vetulonia which Leeds cited for the base-plates of its bucket (p. 139), and is contemporary with the Late Urnfield phase in Central Europe⁶ out of which the Nannau and Whigsborough ('Dowris') buckets stemmed.

Another example of the pattern in embossing appears in France on the beaten-bronze cuirass from the river Saône at Saint-Germain-du-Plain (Saône-et-Loire) in Burgundy, which Merhart in his recent work on body-armour dates as late as Hallstatt C,⁷ because its shape is modelled on that of his 'Styrian-Carinthian' group

¹ Pending further publications on this chronology, reference may be made to H. Müller-Karpe in *Schild von Steier*, v (Graz, 1955), 25-29.

² Leeds, *Archaeologia*, lxxx, 22; 35, no. 6; Merhart, *op. cit.*, Taf. 18, 3 (a sketch not accurate in all its details); Evans, *Anc. Bronze Imps.* 413, fig. 513. Leeds, Dervock (Irish-British), has a like profile.

³ With Merhart's summary, *op. cit.* 58-62, cf. Childe in *Acta Archaeologica*, xx (1949), 257-64.

⁴ Merhart, *op. cit.* 38 ff.; and in *XXX. Bericht der Röm.-Germ. Komm.* 1940 (1941), 33.

⁵ Merhart, *op. cit.* (1941), 8, Abb. 2, 3, with refs.

⁶ On this chronology see p. 142, n. 1.

⁷ 'Panzer-Studien', in *Rivista Arch. dell' Antica Prov. e Dioc. di Como*, vol. 'Origines' (1954), Tav. III, 4; cf. W. Déonna in *Préhistoire*, iii (1934), 117-20, figs. 26-28; G. and A. de Mortillet, *Musée préhistorique*, 2nd ed., pl. 99, no. 1108.

of cuirasses, which is of that date. The cuirasses belonging properly to that group, however, do not have embossed ornament; though the contiguous-triangle pattern is indeed prevalent, it is engraved or traced, in the characteristically Hallstattian manner which in Late Urnfield times was only at the beginning of its vogue.¹ On the other hand, the Late Urnfield form of cuirass which had previously reached France (e.g. at Fillinges and Grenoble²) could and did have embossing; and there was embossing on the contemporary Jensovice or 'Kirkendrup' type of beaten-bronze cup, the distribution of which from Central Europe reached not only north to Denmark but west to the West Swiss lake-dwellers,³ and farther, to the Marne in N.E. France. One of these last occurs there in the small hoard of Saint-Martin-sur-le-Pré,⁴ together with two cups of the Central European Stillfried or Hostomice type—early bearers of the hatched triangles round their rim, and again of Late Urnfield date.⁵ These triangles the Burgundian armourer of the Saint-Germain-du-Plain cuirass adopted, along with the new Hallstatt C form, but rendered them in the traditional Late Urnfield embossed style, otherwise absent on Hallstatt C cuirasses. The Cape Castle bucket, on continental analogies to its decoration, can therefore likewise be assigned to a time when a transition to Hallstatt C was just perceptible in the west, but had not been demonstrated by change there to its typically angular bucket form.

The Nannau bucket we have dated perhaps a little earlier, still within the Late Urnfield phase, but not far from the Hallstattian (p. 138), i.e. within the decades following 750 B.C. The manufacture of Irish-British buckets, which began here with the adaptation of the foreign Kurd prototypes, would therefore have started a little after, about 700, and not anyhow later than the early seventh century B.C.

It has been supposed, by Merhart,⁶ that the Kurd type of bucket was brought to these islands along a route marked by two finds in the Netherlands, outliers from the main distribution of those buckets in Central Europe, one at Baerloo in Limburg, the other at Oss in North Brabant.⁷ But both these are Hallstattian; and the Baerloo bucket has variant handles (ribbon, with ring-holder separated beneath). The association of the Oss bucket, moreover, in a barrow-burial with a long Hallstatt iron sword and an iron antennae-dagger and knife which denote the local transition from Hallstatt C to D, not before the sixth century was ending,⁸ has long seemed

¹ Merhart, *op. cit.* 44, 52-53.

² The Fillinges cuirasses (Déonna, *op. cit.* 93 ff. Savoie) are shown by Merhart to be East Alpine imports (*op. cit.* 53), while that from Grenoble (Isère) seems local work (*ibid.* 51): Déchelette, *Manuel*, ii, 1, 234-7, fig. 76; Déonna, 112-14, fig. 22.

³ Maps: Childe in *Proc. Prehist. Soc.* 1948, 190, fig. 8; and previously Sprockhoff, *Handelsgeschichte*, 57-67, Taf. 17 (but no. 30, Hauterive, should be on Lake Neuchâtel). The Dresden-Dobritz find (p. 140, n. 3) has several. Swiss examples figured: Corcelettes, Déchelette, *Manuel*, ii, 1, 287, fig. 108, 1; V. Gross, *Les Protohelvètes*, pl. 2, 6; *Antiquités lacustres*, *Album Lausanne*, pl. 25, 2; Guévaix, *ibid.* 4, has the same embossing; Cortaillod: Gross,

loc. cit. 4.

⁴ P. Favret in *Revue archéologique* (1928), 16-33; this cup, 27, fig. 4.

⁵ *Ibid.*; the type, Merhart in *Festschr. d. Röm.-Germ. Zentralmus. Mainz* (1952), ii, 19-22, Taf. 12-13; these cups, 20 (with map 3), Taf. 12, 5, 9; late pre-Hallstatt dating, 22.

⁶ *Op. cit.* 33.

⁷ Baerloo, A. W. Byvanck, *Voorgeschiedenis van Nederland*, Taf. 24; Oss, J. H. Holwerda in *Oudh. Med. Rijks-Mus. v. Oudh. Leiden*, n. r. xv (1934), 39-55; *Altchlesien*, v, 194-7, Taf. 33.

⁸ M. E. Mariën, *Oud-België* (1952), 275 ff., 303-5.

at variance with the evidence for dating the Irish-British buckets which is given by their associations in British hoards. The bucket fragment from the Meldreth hoard in Cambridgeshire, in particular,¹ which already has the insular features of a cast staple and sharply out-turned rim, would be difficult to reconcile with the appearance of the accompanying objects belonging to the 'carp's-tongue sword' complex, if its continental prototypes arrived in Britain only when buckets like these two were current in the Netherlands. Carp's-tongue swords are noticed elsewhere in this paper as current in the seventh century;² and that this is true also of Irish-British buckets will be argued as we proceed. Meanwhile it should be clear that the Oss and Baerloo buckets, like the Central Italian ones which gave Leeds his argument from the Tomba del Duce at Vetulonia, represent branches of the Kurd type's development which are Hallstattian in age, that is, subsequent to the stock which engendered the Irish-British vessels.

That stock was not of Hallstattian but of Late Urnfield age, and comparison of the two groups in their geographical distribution, along with the Irish-British, can be made from our map, fig. 4, which renders Merhart's with the adjustments now required.³ The continental distribution of Kurd buckets of Urnfield age is seen to be centred in East Central Europe, between the head of the Adriatic and the Carpathians. It has two northerly outliers, at Choryn and Dresden-Dobritz (pp. 139, and 140, n. 3), and one westerly, at Wollishofen in Switzerland. Between these and Wales and Ireland, buckets of this age are lacking. When account is taken of certain other types of Late Urnfield material, which belong to the same culture as the buckets but are distributed not quite so sparsely, it will appear most likely that all, buckets included, were transmitted from the North and West Alpine region including Switzerland and eastern France, across French soil north-eastward to the Channel. We have already seen how the contemporary forms of beaten-bronze cup (Jenovice/Kirkendrup and Stillfried-Hostomice) spread to the Marne, so that we need scarcely doubt that Kurd buckets, though they might be rarer, could be brought into France likewise, and not stop short in Switzerland.

Lastly, the map (fig. 4) draws attention to a further proof that Irish-British buckets evolved by adoption and adaptation of foreign prototypes, in its marking of two further buckets, both found in Ireland, recently recognized as having been *Kurd-Eimer* in their original form, but distinguished by having secondary Irish staples. That is, they are authentic Kurd buckets (with tub-shaped lower portion (*Bodenschale*) and shoulder-angle not yet sharp) which no longer have their original sheet-bronze ribbon handles or handle-carriers, but have had these replaced, as though after damage, by cast bronze staples of the kind proper to the Irish-British buckets. Both are in the National Museum in Dublin, and we are indebted for photographs (and help to C. F. C. H. there, Sept. 1957) to Dr. J. Raftery. One is the bucket from Derrymacash in Co. Armagh (Northern Ireland),⁴ the true char-

¹ *Inventaria Archaeologica*, GB. 13; for these hoards see further, pp. 149 ff., 157-9.

² Below, pp. 178-80.

³ For the continental documentation see his list; also Coblenz, *op. cit.* (p. 140, n. 3), and H. Möller-Karpe, *Bay. Vorgeschichtsblätter*, xxi (1955), 46-75.

The handleless Au and Stična vessels (p. 139) are excluded.

⁴ Mus. no. 1898. 114; *Journ. R. Soc. Antiq. Ireland*, liv, 111, fig. 7 (where superposition of staple on patch can be seen); Leeds, *op. cit.* 16, 20, 35, list no. 8.

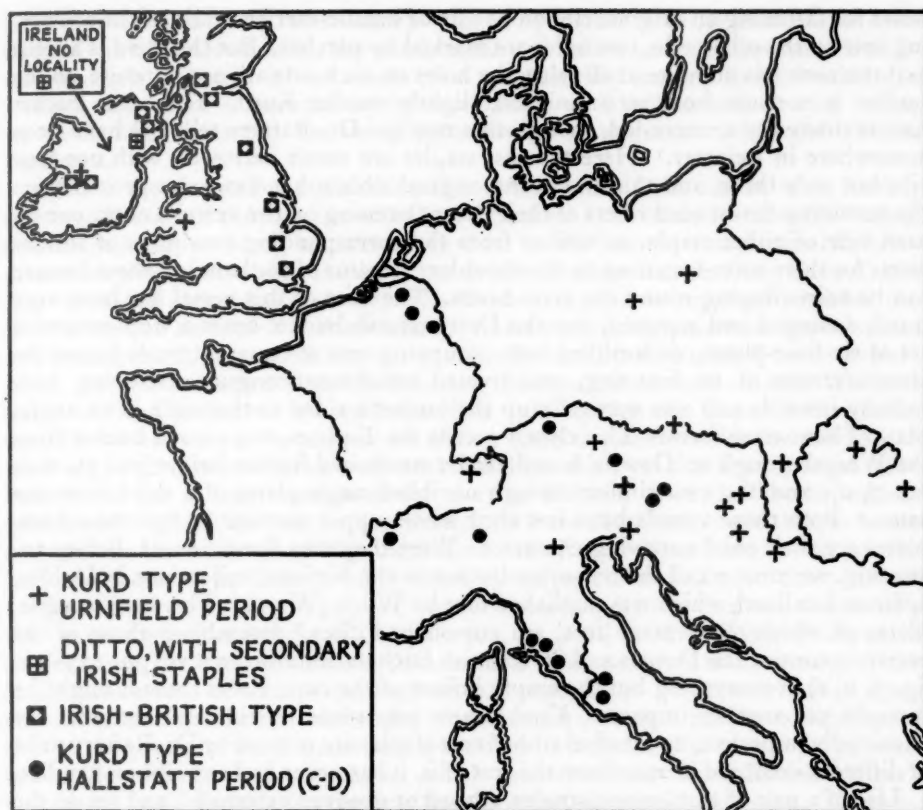


FIG. 4. Distribution map of bronze buckets of the Kurd and Irish-British types. (Kurd buckets on the Continent after von Merhart, and p. 144, n. 3).

Find-spots in the British Isles:

Kurd type (2): WALES (1): Nannau, p. 131. IRELAND (1): *Whigsborough ('Dowris'), p. 134 (L9).

Kurd with Irish staples (2). IRELAND: Derrymacash, p. 144 (L8); no loc., p. 146 (L13).

Irish-British type (13): ENGLAND (3): +Heathery Burn, p. 148 (L2); *Meldreth, p. 144 (L1); *Hatfield Broad Oak, p. 152 (L3). SCOTLAND (2): Cardross, p. 151 (L4); *Duddingston Loch, p. 159 (L5). IRELAND (8): Cape Castle Bog, p. 142 (L6); Dervock, p. 142 (L7); *Whigsborough ('Dowris'), pp. 146, 152 (L10 and 11); no locality, pp. 146, 148 (L12, 14).

(L—number in Leeds's list: *Archaeologia*, lxxx (1930), 35–36; *—in hoard; +—in cave-deposit under stalagmite.) *Grays Thurrock, Essex (Colchester Mus.), staple fragment (bucket or cauldron?).

acter of which was first observed in March 1957 by Mr. H. W. M. Hodges. The cast staples of its present ring-handles have T-shaped plates, like those of the Heathery Burn bucket (fig. 5), and the downward tongue of each of these partly covers a bronze patch on the vessel's shoulder; on one side this is the middle one of a horizontal row of three such, equally spaced and evidently stopping three rivet-

holes for fastening an original ribbon handle or handle-carrier, while of the answering row on the other side, two holes are marked by patches. But the third is absent and the neck has no holes at all; also, the holes on each side are not opposite, so the bucket is re-made from an unfinished, slightly smaller Kurd. The other bucket has its discovery unrecorded, though this may (as Dr. Raftery tells us) have been somewhere in Leinster.¹ Here the cast staples are much narrower, with not four ribs but only three, and this allows the original ribbon handles to be proved from the surviving flat-headed rivets of their inner fastening on the vessel's neck, one on each side of either staple, as well as from the corresponding two pairs of similar rivets for their outer fastening on the shoulder; remains of the handles' sheet-bronze can be seen clinging round the rivet-heads. The base of this vessel has been very much damaged and repaired, but the Derrymacash bucket bears a well-preserved set of six base-plates, with ribbed bars occupying arcs at equal intervals round the circumference of its foot-ring, and riveted attachment-tongues stretching both radially inwards and also vertically up the bucket's sides so that each is an angle-plate of bent-cross form.² This closely recalls the T-plates on a second bucket from the Whigsborough or 'Dowris' hoard,³ to be mentioned further below (p. 152, with fig. 3, c), and the two similar though unribbed angle-plates of a third from the same.⁴ Both these vessels have lost their whole upper portion⁵ so that these base-plates are their chief surviving character. Were they also *Kurd-Eimer*? Before answering, we must recall the one other bucket in the National collections in Dublin, again unlocalized, which was published first by Wilde (W 15).⁶ This has six angle-plates of which the central 'feet' are cup-shaped discs,⁷ resembling those of the certainly continental Dowris and St. Kanzian buckets described above (pp. 139-40; fig. 3, d, e) in everything but the empty hollow of the cup. From these it might be thought yet another imported *Kurd-Eimer*: yet, while its rim and shoulder are admittedly imperfect, and its five-ribbed cast staples are noticed by Dr. Raftery to be of different-coloured bronze from the rest of it, it has never had any ribbon handles.

Use of a pair of cast bronze staples, ribbed or grooved externally, and set on the inside of the rim so that the ring-handles they carry fall inwards, is entirely insular, and is the distinctive feature of Irish-British buckets. Merhart's proposal to derive these cast staples from the occasional grooving of Kurd buckets' sheet-bronze ribbon handles—which are unlike them especially in being attached not only to the bucket's neck but also to its shoulder—is inadequate.⁸ The staples are almost identical with those on Atlantic cauldrons—a contemporary product of the same Irish-British industry to be considered below, from which we follow Leeds⁹ in maintaining that they were borrowed. If in all features except such staples—which became standardized for use on cauldrons only in these islands, after Mediter-

¹ Mus. no. 1901. 57; *Proc. R. Irish Acad.* xxii, 285 (fig.); *Journ. R. Soc. Antiq. Ireland*, liv, 110; Leeds, *op. cit.* 16, 36, list no. 13.

² Leeds, *op. cit.*, pl. viii, 3.

³ *Ibid.*, pl. viii, 4; 36, list no. 10.

⁴ *Ibid.* 36, list no. 11.

⁵ Hence the description, 'pan-shaped vessel', in *Proc. R. Irish Acad.* iv, 425.

⁶ W. R. Wilde, *Catal. Antiquities in Mus. Roy. Irish Acad.* (pt. 2, 1861), 531, fig. 409; Leeds, *op. cit.* 36, no. 12.

⁷ Leeds, *op. cit.*, pl. viii, 1.

⁸ Merhart, *op. cit.* (1952), 33.

⁹ Leeds, *Archaeologia*, lxxx, 25-26. But he supposed cauldrons and buckets to have been both introduced from the Mediterranean: cf. pp. 139, 160.

anean prototypes (see p. 181 below)—the W15 bucket from Ireland follows continental *Kurd-Eimer* models, the combination of traditions it incorporates is difficult to explain, unless it was made by a continentally trained smith working in Ireland, and there influenced by bronze vessels of Mediterranean style, which we shall find becoming known simultaneously to engender Irish and British cauldrons.

Against the alternative explanation that it was native Irish smiths who, having mastered the art of copying imported Kurd buckets in all other features (including disc-shaped angle-plates), transferred to their newly learned vessels the Mediterranean-inspired cast ribbed staple, is the evidence of the bucket from Cape Castle Bog discussed above (pp. 142-3). The lavish ornament in repoussé work on the body is unique on vessels in these islands, where embossing otherwise appears, less ambitiously used, only on the rim of two of the B1 cauldrons which will be mentioned later. But it was an active tradition among sheet-metal workers of Late Urnfield times on the Continent. It seems therefore unlikely that the Cape Castle bucket would have been made by anyone not at first hand acquainted with the modes and methods of continental schools of workmanship. And yet the bucket must have been made (or at least completed for use) in Ireland, since the handle-holders (which are original) are cast staples, though they are of thinner metal than is usual, and are set on wider strap-like extensions which run down, inside on to the bucket's shoulder, to be secured by three rivets (as on the intended sheet-bronze handle of Derrymacash, p. 145), and outside to be held by two rivets on the vessel's rim (as on the earlier handle of Dublin 1901.57, p. 146). The fixing of new-style staples, none the less reminiscent alike in their form, position, and riveting, of the attachment straps of continental buckets and cups, on to a bucket which in form and decoration speaks for continental workmanship, is again hardly explicable except as the product of a migrant smith working in Ireland. The technique of hammering bronze into large sheets, on which the subsequent Irish-British industry was based, itself appears for the first time in these islands at this point. There is, however, no technical deterioration in the sheet-bronze work of the new Irish-British school when its characteristic products begin shortly to appear, compared with the standard on continental prototypes (though workmanship in the cast staples is of varying quality). It would have been easier to have mastered this new skill in imitation of a continentally trained smith working in Ireland, than by contemplation of a mute import.

We suggest, then, that the first large-scale sheet-metal work in Ireland was done by smiths who, whether themselves Irish or continentals, had learnt the process on the Continent. The transition from imported Kurd buckets, like the first in the Whigsborough or 'Dowris' hoard, to true Irish-British buckets with cast staples, will then have been made through various experimental combinations of features, as the industry became wholly naturalized in Ireland. The buckets which survive to indicate this are indeed all too few. But they at least show that it was through this transition that the Irish-British bucket type was formed, and they have allowed us to date the process of experiment within the half-century c. 750-700 B.C.

We conclude this section by a tabulation of all the fifteen known buckets, which

will serve to introduce the undoubtedly Irish-British ones in the next section. We have not been able to obtain information about no. 14 in Leeds's list (L), which was found in Ireland but is now in private hands in Scotland.

	Ireland	Britain
<i>Kurd type</i>	Whigsborough ('Dowris'), L9	Nannau
<i>Kurd type with secondary Irish staples</i>	Derrymacash, L8	
	Ireland, L13	
<i>Presumed Irish-British</i>	Whigsborough ('Dowris'), L10	
	" " L11	
	Ireland, L14	
<i>Irish-British</i>	Dervock, L7	Meldreth, L1
	Ireland, L12	Heathery Burn, L2
		Hatfield Broad Oak, L3.
		Cardross, L4
		Duddingston Loch, L5
<i>Variant</i>	Cape Castle Bog, L6	

C. THE HEATHERY BURN AND OTHER IRISH-BRITISH BUCKETS

The smiths who made Irish-British buckets reproduced almost all the features of their continental prototypes. As in most *Kurd-Eimer*, the body of their buckets was fashioned from two bronze sheets, riveted together vertically along opposite seams, and fitted by similar riveting into a tub-shaped lower portion, which retained the high walls of the earlier (Urnfield) group in the continental series. Details of manufacture also are found faithfully rendered, for example, the hammer-formed footing; and, as on the Continent, the bucket's mouth was strengthened by folding the lip round a bronze wire (though sometimes a wooden hoop was substituted). Protective base-plates, however, appear far more frequently than on the Continent, and the native development of them is discussed below. Use of ring-handles, which also is only sporadic abroad (p. 138), was here standardized. And the distinguishing, and entirely insular, feature of Irish-British work is the pair of cast bronze staples.¹

That these native bronze buckets belong to our Late Bronze Age is attested first of all by the date of their continental prototypes. It was to emulate the *Kurd-Eimer*—and also, it seems, the Urnfield culture's round bronze shields²—that Irish

¹ Professor Stuart Piggott has drawn our attention to an eighteenth-century drawing in the Society's MSS. (*Soc. Antiq. MSS.* 265, p. 30), by William Stukeley, of a vessel from near Chester, otherwise unknown but here described by him as 'a Rom. Camp Kettle found sometime agoe of Copper of this form', the form being that of a bucket with Kurd-like neck and round-shouldered body, but with a pair of ring handles falling outside the rim, and either a pair of corrugations or else an applied

band encircling it below the lip; staples are not shown, but was this an early and experimental Irish-British rendering of the type, replacing the Kurd handle-carriers by staples outside and not inside the rim? If so, this placing was soon abandoned for the inside position, which is invariable on extant Irish-British buckets.

² European bronze shields of this culture and their outliers and derivatives have most lately been reviewed by Sprockhoff in *Jahrb. d. Röm.-Germ.*

smiths set themselves to master the technique of sheet-metal work. The Late Bronze Age dating is supported, too, by the presence of buckets or of their fragments in a certain number of associated finds. Several of these are regular founders' hoards.¹ One, however, stands out unique—the great collection of bronze and other equipment of this period found sealed under stalagmite in the Heathery Burn Cave, near Stanhope in upper Weardale, Co. Durham.

The Heathery Burn bucket² was described by Canon Greenwell in his standard account of the cave's material,³ by Evans in his *Ancient Bronze Implements*,⁴ and in the British Museum's *Bronze Age Guide*,⁵ and *Later Prehistoric Antiquities*,⁶ but it has never before been published fully. The Museum now, through Mr. Brailsford, has generously facilitated our publication of it here, providing both the photograph for pl. II, and the drawing for fig. 5, again by Mr. Waterhouse.

The Heathery Burn Bucket: Description. The bucket is in poor condition, being made of thin sheet-bronze that has in part decayed away, so that the vessel is held to its true shape (as fig. 5) by being mounted on a modern metal former; the bronze bears a dark green patina, with paler green corroded patches. It stands 16.7 in. high, to the top of the rim where this is still preserved (42.5 cm.); its external diameter at the lip is 14.2 in. (35 cm.), and is 16.33 in. where greatest, at the shoulder (41.5 cm.). The upper part of the body is fashioned from two equal sheets of bronze, varying between 0.4 and 0.6 mm. in thickness, riveted together along opposed vertical seams. Above, the seams are worked inwards through an angular turn to a shoulder with slightly convex upper surface, and then reverted at the neck-line to form a short out-turned rim 0.75 in. high (1.9 cm.). This includes the lip, which is bent first inwards and then out and round to grasp a stout bronze wire, 4 mm. in diameter, running round the mouth

Zentralmus. Mainz, i (1953/4), 73–77, with the result that their introduction here at this time seems really certain—including the U-indented 'Herz-sprung' type, whence the V-indented (Clonbrin) will have been a peripheral variant, as also in Spain (figurations on gravestones) and independently in the E. Mediterranean area. This supersedes Sprockhoff's older account (*Handelsgeschichte*, 1930), and the intermediate views of MacWhite and of Hencken: *Actas y Mem. de la Soc. Española de Ant., Etn. y Prehistoria*, xxii (1947), 158 ff.; *Estudios sobre las relaciones atlánticas de la Pen. Hispánica en la Edad del Bronce* (Dis. Matr. II, 1951), 98 ff.; *Journ. R. Soc. Antiq. Ireland*, lxxxi, 6–8; *Amer. Journ. of Arch.* liv, 295 ff. (yet see further p. 180 below). Older shields will have had bronze studs at most, and seldom those. That the round bronze shield from Chatteris (Langwood Fen) in the Isle of Ely need not, as has been supposed, have been associated with the basal-looped Middle Bronze Age spearhead from the same place (i.e. same fen, but two finds) was first pointed out by Mr. H. W. M. Hodges in a paper read before the Society in December 1955. Affinity between shields and buckets can be seen further in their both having rims folded round a bronze wire stiffener.

¹ Leeds, *op. cit.* 16–20, and list (35–36) nos. 1, 3, and 9–11: Meldreth (above, p. 144), Hatfield Broad Oak (below, p. 152), and in Ireland 'Dowris' (Whigsborough), where the bucket discussed above was accompanied by the lower part of a second (Leeds's pl. viii, 4) and of a third with two remaining angle-plates: see p. 152 below. For the Bagmoor hoard (Lincs.) see also p. 152. The hoard found in Duddingston Loch (Edinburgh) Leeds, *ibid.*, no. 5) may have been votive.

² Leeds, *ibid.*, no. 2.

³ *Archaeologia*, liv (1892), 88 ff., 105. In calling it here a 'caldron', Greenwell was using the word in the North Country collier's sense, denoting a coal-tub or large bucket; this use was avoided by Evans (*Anc. Bronze Impts.* 412–14), doubtless to distinguish these 'conical vessels' or 'vases', as he called our buckets, from the 'spheroidal caldrons', i.e. the caldrons considered here below. It should not be revived.

⁴ (1881), 412.

⁵ (1920), 46–51, with a selection of Greenwell's illustrations reproduced as figs. 34–35. Since his main collection was acquired in 1909, the British Museum has had nearly everything extant from the cave.

⁶ (1953), pl. iv, 1.

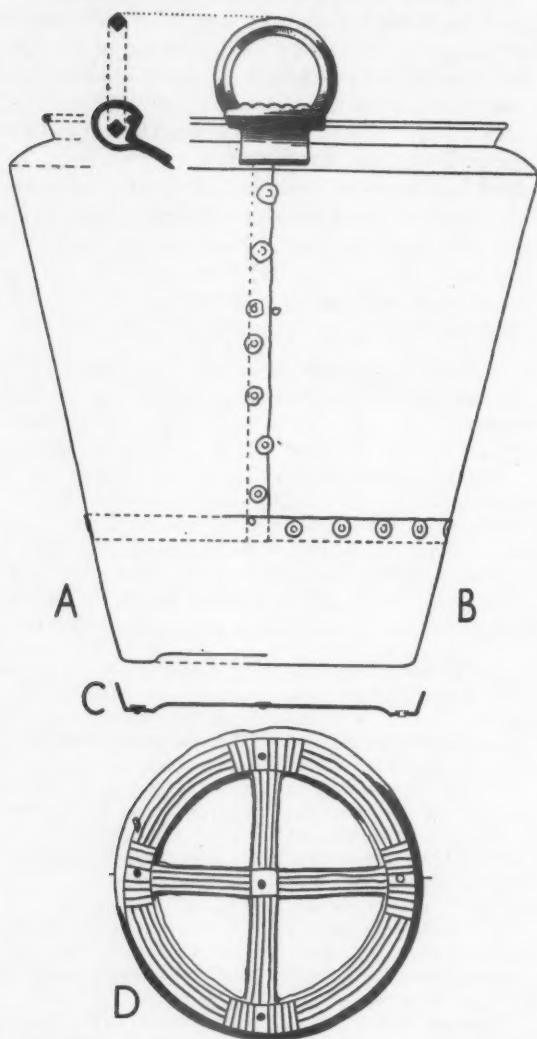


FIG. 5. Bronze bucket, Heathery Burn Cave, Co. Durham ($\frac{1}{2}$). A, B. Section and elevations, showing handle. C, D. Section and plan of base-plate.

to stiffen it. The upper sheets are riveted horizontally below into a single tub-shaped lower portion, of rather stouter metal, 4.48 in. high (11.4 cm.), with a base of diameter 9 in. (23 cm.), hammered up into a dish-shaped hollow underneath, 7 mm. deep, inside a foot-ring about 1.1 in. wide.

The base is reinforced by a wheel-shaped plate with four evenly spaced spokes, cast in one piece, and attached by a rivet at the centre and in the middle of the circumference opposite each spoke. An upward flange, 0.85 in. high (2.15 cm.), clips round the bottom of the bucket's sides; the circumference-ring and spokes, in their cross-section, are moulded to follow the outline of the basal hollow. Three concentric ribs run round the ring, which is 0.9 to 0.95 in. wide (2.2–2.4 cm.), interrupted at the spoke junctions by short transverse ribs at right angles flanking the rivets (twice in sets of 5 and 5 strokes, once of 4 and 4, and once of 4 and 5). Similar strengthening corrugations run in radial lines along the spokes, which are somewhat narrowed between their junctions with the ring and with each other at the centre; there, the central rivet stands in a reserved square. Large-headed rivets are used throughout, affixed from the inside to hold the base-plate, and from the outside on the body.

The two handle-staples are cast on to the inner surface of the rim, above the body seams; one is moulded with five, the other with six external ribs. Each is cast in one with a short horizontal bar which clips the lip, and from which a neat strap of thick metal runs down to fit into the neck-angle and extend on to the shoulder. On the inside, the staple extends into a vertical strap fitting under the shoulder only. From these staples a pair of free, cast ring-handles falls inwards; their external diameter being 3.7 in. (9.5 cm.). Their cross-section is lozenge-shaped, with sides of about 9 mm.

On the technique of manufacture shown by the bucket and its base-plate, Mr. Maryon has kindly contributed the following observations.

Each of the bucket's handle-staples was cast in two parts, the outer part being the external vertical strap which lies on the neck and shoulder: this was cast separately from the staple proper and the inner strap, and it has square-cut edges, not quite true. Probably a notch or hole was cut through this, and through the rim of the bucket, to allow the molten 'burning-on' metal free access to both sides of the rim under the two parts of the staple. A good deal of molten metal ran over the surface of this outer part, and it was subsequently filed up. The molten metal ran beneath the other part of the staple and fixed it firmly. On this second part—the staple proper, together with the internal vertical strap and the external horizontal bar which clips the rim—the ribs were formed by filing out grooves, which perhaps had previously been chipped out. The ribs are quite irregular in width. They and the horizontal bar were filed up and completed before they were fixed by 'burning on'.

The base-ring with cross-shaped centre seems to be an original part of the bucket. It is of cast bronze. It would be made in a two-piece mould. The piece for the upper side of the casting would be moulded on to the base of the unfinished bucket. It would be lifted off; and the half-cylindrical grooves, intended to produce the ribs or corrugations on the casting, seem to have been scraped out of the clay of the mould with the aid of a 'string' compass, rather than with a rigid one. The string would be tied to a central peg and held in the hand while the circles were incised with a tool held in the same hand.

The lower portion of the body (base and nearly $4\frac{1}{2}$ in. of the sides) was raised from a single piece. On the top of the shoulder, there are signs of pleating.

It has been usual to consider the Heathery Burn bucket as the latest form in a native bucket series. This assessment has been derived principally from its wheel-shaped base-plate, which, being cast in one piece, has been represented as the culmination of a typological development from earlier small multiple base-plates or angle-plates.¹ The bucket from Cardross, Dumbartonshire,² has an identically

¹ Leeds, *op. cit.* 20–22.

² *Ibid.* 22, fig. 8; 35, no. 4.

similar wheel-shaped base-plate. (An abrupt profile, with sharply angular shoulder, is shown by these two vessels and has also been thought diagnostic of lateness, here as on the Continent.)

This postulated typological sequence of base-plates would begin from sets of small plates such as the six angle-plates of bent-cross form on the Derrymacash bucket considered above on p. 146, or, more clearly, from the T-shaped plates on the second bucket from the Whigsborough ('Dowris') hoard, of which there probably were eight, formed to clip round the sides of the vessel at the bottom.¹ In both these examples, the edge-bars of the plates are curved to fit, at intervals, the circumference of the bucket's base, and carry arcs of ribbing² concentric with it (fig. 3, c). The next 'stage' would be illustrated from the Bagmoor hoard (north Lincolnshire):³ here the six base-plates—which were not accompanied by their bucket—follow the 'Dowris' T-shaped model, but with their curved edge-bars elongated to form contiguous arcs. The scheme has been thought then to lead to a final version with continuous circumference, as on the Heathery Burn and Cardross vessels, having the radial arms of the T-pieces joined up as spokes, parallel-ribbed like the circumference, and cross-bracing what has become a single wheel-shaped casting. The variant seen in the Hatfield Broad Oak hoard (Essex),⁴ where the base-plates are simply four contiguous quadrants of arc, might likewise have been 'developed' into a single spokeless ring-casting, though no example of this has actually been found.

The wheel-shaped base-plate does seem to be an invention of Irish-British smiths. They will have seen the advantage of simplifying the system of multiple base-plates into a single casting. But the idea that they took a long time to see this, or could attain the single casting only after long stages of experiment, making the multiple plates larger and fewer by slow degrees, is unsupported: the typological 'evolution' cannot be used as the chronometer of any such lengthy period. It is, moreover, inconsistent with the evidence of the associations of the Heathery Burn wheel-shaped base-plate, since these show no feature proper to the Hallstatt C influences which began to reach this country (after some retardation during their movement from Central Europe westward) about the middle of the seventh century (p. 190). The multiple ribbed arc-plates related to the wheel-plate (and typologically the 'earliest' stage in their development), moreover, are securely dated to the very beginning of bucket history in Ireland. In their bent-cross form, the six arc-plates on the Derrymacash (p. 146) follow the fashion of continental angle-plates with straps riveted to the vessel's sides as well as to the base (as at 'Dowris' and St. Kanzian, pp. 139–41, fig. 3). The nearest comparison among what we may suppose were the continental analogues to the Derrymacash form is given by the H-shaped base-strengtheners of sheet-bronze of the Nannau bucket (p. 132); concentric ribbing on cast arc-plates, however (unless it be assumed that this will also prove to be matched abroad by later finds), appears to be an Irish invention, which may be set alongside the adoption of cast ribbed handle-staples. For at Derrymacash

¹ Leeds, *op. cit.* 20, pl. viii, 3 and 4; 35–36, nos. 8, 10; no. 11 is the third 'Dowris' bucket.

² Leeds's no. 11 lacks these.

³ *Arch. Journ.* ciii (1946), 8–11, pl. 1, e–f and

fig. 9; H. E. Dudley, *Early Days in North-West Lincolnshire* (1949), 95–101, figs. 34–35; *Inventaria Archaeologica*, GB. 23, 1.

⁴ Leeds, *op. cit.* 22; 35, no. 3.

these angle-plates, as we have seen, were an original feature of a bucket made from a *Kurd-Eimer*, discarded before being fitted with its proper ribbon handles. It may well be that the invention of this form of strengthening belongs to the time of experiment, recognizable also in the riveting of staples of the new cast sort on to the continental-style ornamented Cape Castle bucket, and in the casting of other such staples on to the W15 bucket, otherwise continental in form, and in the style of its cupped angle-plates, out of which the Irish-British bucket was standardized. We cannot show whether the T-shaped ribbed arc-plates on the second 'Dowris' bucket (of which the base only survives) were also made in this initial phase, while features directly based on the *Kurd-Eimer*, and later modified, were still current. Nor does the single-piece four-spoked wheel-plate on the Cape Castle bucket (plain except for a central cupping) allow an exact estimate of how soon that form was evolved, for it replaces an earlier base-strengthening of angle-plates (of which the marks of six are still visible of a possible eight). There is no reason, however, why the single-piece wheel-shaped plate, or alternative forms with contiguous T-shaped arc-plates, should not have become established as soon as the Irish-British bucket with cast-on grooved staples became standard. Its manufacture will then fall in the first half of the seventh century, until the bronze bucket itself was given up in favour of other types of beaten-bronze vessel.

More helpful for the dating of the Heathery Burn Cave deposit is the horse and wagon gear contained among it. To make an assessment of this, we must first consider examples of related, but more sophisticated, workmanship on the Continent.

At the French site of La Côte-Saint-André (Isère) was found a very large bucket, with the four cast wheels of its ceremonial trolley.¹ It was mapped by Merhart as Hallstatt C (whence our fig. 4); in form, however, it exactly resembles the vessel from grave 504 at Hallstatt, which, as we saw above, has the Hallstattian low-walled bottom portion and yet still the Late Urnfield round-shouldered profile as on the Nannau bucket, and must therefore be dated close after the Urnfield-Hallstattian transition, that is, early in the seventh century. To give the La Côte-Saint-André bucket the same date will probably put it before that transition had reached E. France, for the wheels found with it are distinctly of Urnfield and not yet of Hallstattian character.² This find, like that of the Saint-Germain-du-Plain cuirass discussed above (pp. 142-3), is to be placed in a French Late Urnfield period comprising not only the eighth century but also an initial fraction of the seventh, before the iron-using Hallstattian culture came in from farther east.

There are six known West European finds of wheels of the La Côte-Saint-André whole-cast type. Of these, two are outliers to the south (Nîmes and Fa), but those of La Côte-Saint-André, Langres, Hassloch (Palatinate), and Cortaillod (Lake Neuchâtel) centre the distribution on E. France and its borders. A seventh, in 1919 at Stade near the mouth of the Elbe, explained by the well-known export of bronzes to Northern Europe from this same region,³ led to the classic publication of the

¹ Déchelette, *Manuel*, ii, 1, 291-5; Merhart, *op. cit.* (1952), 33 (could possibly have come over from N. Italy, where such Hallstattian buckets likewise extend); for the wheels see next note.

² Déchelette, *Manuel*, ii, 1, 290-3, figs. 111-111a.

³ Cf. Sprockhoff in *Archaeologia Geographica*, ii (Hamburg, 1951).

whole series by Jacob-Friesen.¹ Characteristic of them are cylindrical projecting nave-bands, rib-moulded for strength, gripping the wooden axle on either side of the broad plump wheel-hub and steadying this between them; these bands are cast, like all the rest of the wheel, and technical examination of the Stade specimens showed how the whole-cast result was obtained by casting on to one another several parts cast separately first. These elaborately-wheeled trolleys were for the ceremonial parading either of a bucket (removable but otherwise recalling the Milaveč or Skallerup wheeled cauldrons), presumably in rain-making or other fertility ritual, or else perhaps sometimes of cult-symbols or images in the manner of the Trundholm or Dupljaja or Stettweg cult-cars. Wheels with the wood less elaborately bronze-mounted, or not at all, must be supposed to have been far more frequent, whether for such rites in poorer communities, or—and progressively as wheelwrights' and wainwrights' skill developed—for practical use in carts and wagons.² If an otherwise wholly wooden set of four wheels were yet secured on their axles by cast bronze nave-bands, like those that project from the extant whole-cast bronze wheels, these bands would form a set of eight rib-moulded cylinders. And precisely such a set of eight was found in the Heathery Burn Cave.³ Their identification, doubted by Greenwell and only guessed by Evans, was accepted by Reginald Smith, and is corroborated both by the requisite number of eight, and by having lain in the cave 'in close proximity to' six bronze discs with central hole and four strap-loops behind,⁴ which, with a ring-backed and slit-sided disc and a smaller five-looped disc also found,⁵ have certainly to do with horse-harness: the wagon in fact was horse-drawn. To harness, possibly, belong also the one-looped type of 'button' here⁶ and in the Reach Fen, Llangwyllog, and (larger) Kensington hoards:⁷ at any rate, nine very similar, along with one two-looped and eight slit-sided discs, were in the Parc-y-Meirch hoard from St. George (Denbighshire), not far from Abergele in N. Wales,⁸ which seems all horse-bronzes. It includes also strap-slides, and terrets, harness-loops, and other rings, together with pendent kidney-plates, which could be as late as Hallstatt C.⁹ The Horsehope hoard (Peebles.) includes another such harness-loop, rings, and probable cart- or wagon-mountings, of this same period but not demonstrably as late as Hallstatt C.¹⁰ And the Welby hoard (Leics.)¹¹ included similar harness-loop and slit-sided ('slided') disc types, accom-

¹ K. H. Jacob-Friesen in *Prähist. Zeitschrift*, xviii (1927), 154–86.

² Cf. Childe in *Proc. Prehist. Soc.* xvii (1951), 177–94.

³ *Archaeologia*, lii, 103, fig. 21; British Museum *Bronze Age Guide* (1920), 46, 48, fig. 34, top right; Evans, *Anc. Bronze Impts.* 402, fig. 502 (erroneously 'about ten'). They are 2½ in. deep, or 6.66 cm., and do not much resemble (as has been suggested) the Early La Tène bands from the Armsheim grave in Rheinhesen. *A.u.h. V.* iii (1881), iii, Taf. 11, 3, which measure only 1.6 cm., and require wheels as at Kärlich: *Germania*, xviii (1934), 8 ff. Abb. 1, 5.

⁴ *Archaeologia*, lii, 103–4, fig. 22; B.M. *Bronze*

Age Guide, *ibid.*, top left; Evans, *ibid.*, fig. 501.

⁵ *Archaeologia*, lii, 104; 'larger button' in Evans, 401.

⁶ *Archaeologia*, lii, 104, fig. 23; *Guide*, 47, fig. 33, bottom right.

⁷ Evans, *op. cit.* 400–1, fig. 499 (Reach), with refs.; *Inventaria Archaeologica*, GB. 17 (3), 26–27.

⁸ T. Sheppard in *Arch. Cambr.* xcvi, 1 (1941), 1–10; these, 8–9 (nos. 83–91 and e, 82, and 74–81).

⁹ 'Abergele' in Evans, *op. cit.* 404–5, figs. 505–7.

¹⁰ S. Piggott in *Proc. Soc. Antiq. Scot.* lxxvii

(1953), 175–86.

¹¹ T. G. E. Powell in *Arch. Journ.* cv (1950),

27–40; *Inventaria Archaeologica*, GB. 24, 2 (2).

panied by a bronze bowl recalling Urnfield fluted pottery, and the handleholders of a continental cross-handleholder bowl, which Merhart has put in his class C (Hallstattian) only with reservations:¹ they look much more like class B1 handleholders, as are those found e.g. in the cave at St. Kanzian (p. 140) or at Unterglauheim in Bavaria or in the Rhine at Mainz, in which case they will be of Late Urnfield date.² In any case, we can follow Piggott in raising Powell's late date for the Welby hoard: it need be no later than the middle seventh century.

The Heathery Burn Cave has no bronzes suggesting Hallstatt C. And in its larger strap-looped discs, those found near the nave-bands, it has something very like the continental Urnfield varieties of the *Zierbuckeln* or boss- or disc-shaped ornamental trappings, often called 'phalerae' (*Falern*), which Merhart³ has lately classified, and distinguished from their Hallstattian successors to which we shall come below. Of those typical of the West Swiss lake-dwelling region, the scatter which he has mapped for France can be supplemented—to make a link with the Heathery Burn four-looped variants—by some few found in Britain. Two of the authentic form, which has a single loop, cast at the back of the central button, have come from the Thames about Brentford (Middlesex), one and perhaps both from the 'Old England' site there,⁴ which has produced other exotic bronzes of this as well as of the ensuing Hallstatt period. Both have a pimpled rim, and are of Merhart's 'embossed' class;⁵ there were also fragments apparently of his 'four-boss' variety⁶ in the hoard found over a century ago near Stanhope (Co. Durham), not far from the Heathery Burn Cave and comprising otherwise types recurring in it.⁷ Moreover, one of his concentric-'ribbed' variety⁸ was found in Ireland, also long ago, on Inis Kaltra in Lough Derg, between counties Clare and Galway.⁹ Here

¹ Merhart, *op. cit.* 5, 14, 33; list, 64–65, with Taf. 5–6.

² *Ibid.* 4 ff., 11 (map of all classes), 13–14; list, 63, with Taf. 1–2. Sprockhoff's account: *Handels-geschichte*, 100 ff. Unterglauheim bowl figured for comparison with Welby: *Arch. Journ.* cv, 35, fig. 4.

³ G. von Merhart in *Jahrb. d. Röm.-Germ. Zentralmus. Mainz*, iii (1956: Sprockhoff-Festschrift, 2), 28–120; maps, 53; lists, 103–4.

⁴ One, Layton colln.: R. A. Smith in *Archaeologia*, lxix (1920), 17–18, fig. 17, Thames at or near Brentford; one, London Museum, *ibid.* 16: 'Old England', Brentford, R. E. M. Wheeler in *Antiquity*, iii (1929), 20 ff., pl. 1, fig. 1, 9; of other bronzes from here, some exotic, pl. 1, 2 shows knives and razors, *Proc. Prehist. Soc.* xii (1946), pl. viii, fig. 9; for the Hallstatt types, see p. 188.

⁵ Like his Abb. 2, 2, from the Auvernier site on Lake Neuchâtel.

⁶ With the four bosses making a quincunx with the central button: his Abb. 2, 4–10, from the same site and from Corcelettes.

⁷ *Arch. Aeliana* (4to series), i, 13, pl. II, 14.

⁸ Merhart's Abb. 3 and 5–8. Smith's round plate

from the Thames at Strand-on-the-Green (London: *Archaeologia*, lxix, 16; Vulliamy, *Arch. of Middlesex and London* (1930), 108), with seventeen concentric ribs and a diameter of 11 in. (almost 28 cm.) must somehow be related, although so large: the urn-cover in the 'king's grave' at Seddin, which is one of these things re-used, measures 27.8 cm.: Merhart, 48–49, Abb. 6, 11. Seddin is in Brandenburg, but the North and West were certainly connected: the hilt of a North German kidney-sword, very like the one buried with this 'king', was in the Petit-Villatte hoard in central France, which also contained one of these phalerae (see p. 156, n. 1), and moreover hog-back knives of our 'carp's-tongue sword' complex too. Seddin is of Montelius period V and coeval with Late Urnfields, eighth century; the hilt was scrap at Petit-Villatte in the following century. See Sprockhoff, *Die germanischen Vollgriffschwerter* (1934), 21–23, 90, with Taf. 8; Savory, *Proc. Prehist. Soc.* xiv (1948), 155 ff., 161 (map), 175 (list).

⁹ *Arch. Journ.* ix (1852), 200; Evans, *op. cit.* 401 (British Museum).

then is a further class of horse-furniture connecting us with West-Central Europe in this period through France.¹ Better known is that of bridle-cheekpieces made in deer-antler, which were recognized at Heathery Burn by Greenwell.² They are of the type with the terminal perforations bored at right angles to the middle one. This is specifically the established type in Central Europe³ before the arrival, from the East, of the Asiatic type with all three perforations or loops in the same plane, which, whether or no it came into Hungary with Cimmerians, is in Central Europe farther west a hallmark of Hallstatt C.⁴ Our cheekpieces then denote horse-driving in the Urnfield mode, and not yet in the Hallstattian; and their introduction from the West European Urnfield province including the Swiss lake-dwellers was correctly recognized by Childe,⁵ in the footsteps of Greenwell, and of Smith,⁶ who furthermore published two from the same Brentford reach of the Thames that produced the phalerae.⁷ All this must mean a date for the Heathery Burn cave-deposit well within the seventh century, no great while after the genesis of Irish-British buckets. Our typological contention, that the base-plate of the Heathery Burn bucket need not make it late, is thus upheld.

The two gold ornaments from the Heathery Burn cave-deposit might be supposed by some to upset this conclusion, for they comprise a bracelet of C section with slightly expanded terminals and a penannular 'hair-ring' of triangular section,⁸ both types belonging to the well-known repertory of gold ornaments produced by the Late Bronze Age smiths of Ireland, for which Mr. Bruce Proudfoot, in a recent study, has suggested an initial date not earlier than 600 B.C.⁹ That the production in general lasted late in Ireland is not in dispute, and individual ornaments might sometimes be treasured for long before loss or burial, but neither of these truths can serve to depress the initial dating of the production of all types of these ornaments ever found associated. The dating must be supplied partly by perceiving foreign elements of known age amongst the types of ornament produced, and partly by noting the cases where any of the ornaments or copies of them occur in associations of known age. Of the two chief foreign elements, one is that seen in the 'Covesea' type of bracelet with terminals expanding outwards, Proudfoot's type 2, in contrast to type 1 with expansion all round.¹⁰ His foreign background for this element is precisely that of the West European Late Urnfield culture that we have been

¹ A search for more might prove rewarding both here (see Evans, *ibid.*) and in France too, where those cited and discussed by Merhart (45-46, n. 40) come from hoards including Petit-Villatte (Abb. 7, 7, 9), Vénat (apparently), and Manson (Abb. 7, 6, 8; Déchelette, *Manuel*, ii, 1, 283-4, fig. 105), all three of which contain also one or more 'carp's-tongue complex' objects: see Savory cited p. 155, n. 8.

² *Archaeologia*, lii, 110, fig. 30; B.M. *Bronze Age Guide*, 49-50, fig. 35.

³ A. Mózsolics in *Arch. Értesítő* ix (1948), 71-73, and *Acta Arch. Acad. Sci. Hungaricae*, iii (1953), 69-111 (both in French).

⁴ G. Kossack in *Jahrb. d. Röm.-Germ. Zentral-*

mus. Mainz, i (1953/4), 111-78; and in *Schild von Steier*, ii (Graz, 1953), 49-62.

⁵ *The Bronze Age* (1930), 104, 230.

⁶ *Archaeologia*, lii, 110, with fig. 31; B.M. *Bronze Age Guide*, 50 with 121.

⁷ *Archaeologia*, lxix, 20-21, with fig. 21.

⁸ *Archaeologia*, lii, 96, figs. 1 (bracelet) and 2; B.M. *Bronze Age Guide*, 46-47, fig. 33.

⁹ V. Bruce Proudfoot, *The Downpatrick Gold Find* (Arch. Research Publ. N. Ireland, 3, Belfast, 1955).

¹⁰ *Ibid.* 15 ff., following Miss Benton in *Proc. Soc. Antiq. Scot.* lxx (1931), 183. The Heathery Burn bracelet's terminals are of type 1.

considering, only its date is needlessly depressed at least fifty years,¹ and the beginning of its influence in Britain and Ireland is then retarded by another fifty. Mr. Proudfoot's analysis is otherwise most admirable, but his suggested '600' should be amended to '750/700'. It is only natural, then, that Covesea bracelets of bronze² should occur at Heathery Burn with our bucket dated in the seventh century; and only natural that the hoards containing bucket fragments in southern Britain—Meldreth and Hatfield Broad Oak (pp. 144, 152)—should be associable with the 'carp's-tongue sword' complex. That complex includes also examples both of Covesea bracelets and of their continental analogues³—to Mr. Proudfoot's list of which⁴ may be added that in the Shoebury hoard (Essex),⁵ and that from the Thames about Brentford, at or near the 'Old England' site above referred to.⁶

The other foreign element in this period's Irish gold-work is the Scandinavian influence, mentioned again below (pp. 186-7) and apparent in the fine concentric ornament seen notably on gold discs, of the Lattoon sort, and the discs of gorgets.⁷ Now the Gorteenreagh gold hoard,⁸ which Dr. Raftery is soon to publish, includes both a gorget and a 'hair-ring' penannular. That from Mull includes such a penannular and a disc with the concentric ornament;⁹ and at Cooper's Hill (Alnwick) this appears on the penannular itself.¹⁰ These 'hair-rings' thus help appreciably in correlating the time of the Scandinavian influence in Ireland, seen in this ornament, with that of the Late Urnfield current from the Continent, represented on the one hand by the Covesea bracelets, and on the other by our buckets. For not only have we bucket and 'hair-ring' penannular together at Heathery Burn: there are three hoards in France where bronze copies of these penannulars¹¹ are associated with Late Urnfield bronzes—they were published by Favret in 1928.¹² One, solid-cast, was in the Choussy hoard (Loir-et-Cher) with an Irish-British socketed bronze knife of this period; fragments of three in sheet-bronze were in the Vénat hoard (Charente) already mentioned; and eight, in gold-plated sheet-bronze over a clay-

¹ That the chronology given by C. F. C. H. in *Proc. Prehist. Soc.* 1948 was too low, has been apparent from much in the literature since then.

² Proudfoot, *ibid.*, from Benton, *ibid.* 184; *Archaeologia*, lii, 102.

³ *Ibid.* 17-19.

⁴ *Ibid.* 34-36.

⁵ Read in *Proc. Soc. Antiq.* xiv (1892), 174 ff., 177-8, fig.; Montelius in *Archaeologia*, lxi, 1 (1909), 50, fig. 172.

⁶ R. A. Smith, *Archaeologia*, lxi, 17-18, fig. 16. See also the bracelets from Dreuil (Amiens) and Reach Fen (Cambs.) compared by Leeds: *Archaeologia*, lxxx, 17, fig. 5.

⁷ Gorget: e.g. Raftery, *Prehistoric Ireland*, 170-1, fig. 187; Lattoon disc, Macalister, *Arch. of Ireland*, 2nd ed. (1949), 197, from *Man*, xx, 45.

⁸ Preliminary notice in *Arch. News Letter*, iv (1952-3), 177.

⁹ *Proc. Soc. Antiq. Scot.*, lxxviii, 192; Childe, *The Prehistory of Scotland* (1935), 162-3, pl. xii.

¹⁰ H. Maryon in *Arch. Aeliana*⁴, xvi (1939), 101-8; cf. *Proc. R. Irish Acad.* xlv (1938), C, 203-5.

¹¹ Not in St. George Gray's list of the gold penannulars, *Antiq. Journ.* v (1925), 141-4; nor in Proudfoot's (*op. cit.* 42-43), but mentioned by him (*ibid.* 28) from Childe's comment on the pair of these lately published by Miss P. M. Keef from Harting Beacon (Sussex), as deposited not earlier than pottery dated Iron Age A2: *Antiq. Journ.* xxxiii (1953), 205. If this is a case of long survival, it can in no way alter the date of the copies in France, which, even if absolutely as late as the start of Childe's 'Hallstatt I' (= German Hallstatt C), must be over three centuries before British Iron Age A2 (starting c. 300).

¹² P. Favret in *Revue archéologique* (1928), 16-33, with map, fig. 2; Choussy, figs. 3, 4; Vénat, *ibid.* 1-3; Saint-Martin-sur-le-Pré, fig. 1; cups, see p. 143 above, with nn. 4, 5.

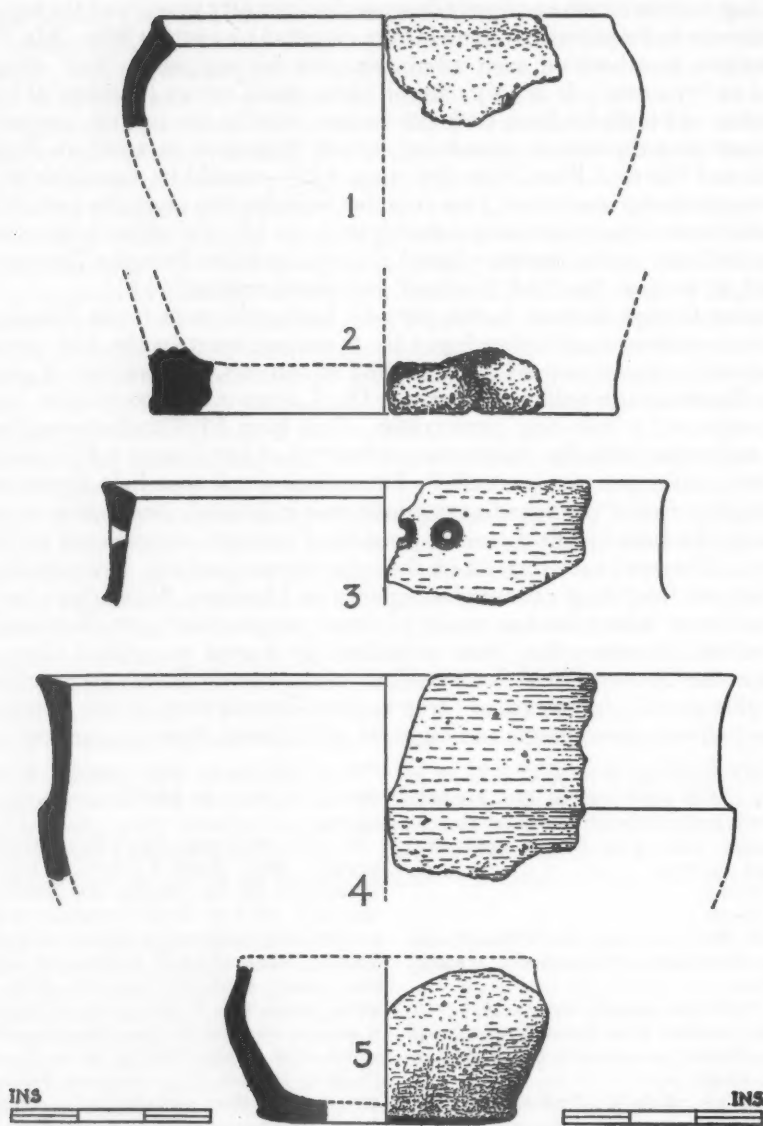


FIG. 6. Heathery Burn Cave: the surviving fragments of pottery (1) (British Museum).

like core, were in the same small hoard of Saint-Martin-sur-le-Pré, in the Marne, which is dated to this same period (see p. 143) by its Jenšovice and Stillfried-Hos-tomice cups. No theory of 'Atlantic retardation' can date this in the Marne as late as 600 B.C. The superseding of Urnfield by Hallstatt culture indeed began a little later in France than in the Eastern Alps, as we have now seen with the cuirasses and the wheels. But we shall see below that the Marne cannot be excluded from the regions where it had come at any rate before 600. A date as late as that, or in the late seventh century, does seem allowable for the Parc-y-Meirch hoard, if we accept the suggestions of Hallstattian influence in its horse-bronzes. But it is not demonstrable for Horsehope or Welby; and it certainly will not do for Heathery Burn. Among the more familiar types in the Heathery Burn assemblage, the wing-ornamented socketed axe¹ correlates this again with the 'carp's-tongue sword' complex, which we shall see was flourishing in the seventh century (p. 179). The Class II razor² does the same, and recurs at Whigsborough,³ where furthermore, as again with our bucket type at Duddingston Loch in Scotland,⁴ we have the lunate spearhead type,⁵ which is represented in the Spanish Ría de Huelva find, again with carp's-tongue swords, proven of the seventh century (pp. 178-80). And the jet or lignite bracelets⁶ recurred in the Llangwyllog hoard in Anglesey,⁷ along with the double-hooked looped-wire armlet⁸—a type which (like the Class II razor) is of earlier origin, and has no associations after its appearance in the same 'carp's-tongue sword' complex. Dr. Savory has shown, of course, that that complex lasted later, both in Western France and on both sides of the Channel, than the coming of Hallstatt C to Eastern France.⁹ But nothing can push it out of its hold in the seventh century, nor pull up its roots in the Late Urnfield culture of the eighth.

We have thus, after dating the Kurd buckets from Nannau and Whigsborough to the half-century c. 750-700, dated the derivative Irish-British buckets all to the seventh century and no later. It may be of interest, in conclusion, to publish here the surviving fragments of the least familiar element in the Heathery Burn Cave material, namely its pottery (fig. 6). The literature of 'flat-rimmed ware'—for to that perplexing class of coarse ware this has to be assigned—is now considerable, and the general notion has been that it may betoken foreign immigration. For this notion in Scotland, we have behind us Miss Benton and Professor Childe in 1931-5;¹⁰ for Ireland as well as Britain, Dr. Hencken in 1942.¹¹ It has its opponents; and a

¹ *Archaeologia*, lii, 100-1, fig. 9; B.M. *Bronze Age Guide*, fig. 34.

² Evans, *Anc. Bronze Impts.* 218-19, fig. 270; *Archaeologia*, 100, fig. 7; *Bronze Age Guide*, fig. 33; *Proc. Prehist. Soc.* xii (1946), 126-8, 138-40, no. 43.

³ 'Dowris', *ibid.* (1946), nos. 65-69.

⁴ See p. 149 here, n. 1.

⁵ Evans, *op. cit.* 335; *Bronze Age Guide*, 106, pl. viii, 1.

⁶ *Archaeologia*, lii, 107, fig. 24; *Bronze Age Guide*, fig. 33. ⁷ R.C.A.M. *Anglesey*, liii, fig. 16.

⁸ Llangwyllog, *ibid.*; Evans, *op. cit.* 386, fig. 483, which is Heathery Burn: *Archaeologia*, lii, 103-4,

fig. 20; also lxxx, 16-17, fig. 27; *Bronze Age Guide*, fig. 33.

⁹ H. N. Savory in *Proc. Prehist. Soc.* xiv (1948), 155-76. For ring from Crozon (Finistère), see below, p. 185, with n. 5.

¹⁰ Childe, *The Prehistory of Scotland*, 170 ff., 188-9, starting from Miss Benton on this ware in her cave at Covesea (*Proc. Soc. Antiq. Scot.* lrv (1931), 177 ff., and continuing from that of the Old Keig stone circle, whence the ware has sometimes been named.

¹¹ On the pottery of Ballinderry Crannog No. 2: *Proc. R. Irish Acad.* xlvii, C, 10-11, 22-27. And see now Proudfoot, *op. cit.* 17.

provisionally balanced summary has been given us by Professor Piggott.¹ But there has throughout been a tendency, however it has been interpreted, to date it late, and to see in it a Highland-British and Irish counterpart to the coarse pottery of Lowland-British Iron Age A, beginning not before the fifth to fourth centuries B.C. The secure dating of the Heathery Burn fragments in the seventh century is here offered by way of a corrective. They are of a fairly hard-baked sandy-gritty ware, reddish to brownish in colour. The two pieces with carinated shoulder (nos. 3, 4) are of somewhat finer fabric than the rest. Whether or no their shoulder-form has anything to do with that of our bronze buckets, it is worth noting that this feature, no less than the 'flat' rim, is present already at such an early date. But we do not here propose to discuss 'invasions'. We have completed our consideration of the buckets, and will turn now to the cauldrons.

D. THE COLCHESTER CAULDRON

The cauldrons of the Irish and British Late Bronze Age, unlike the buckets, are round-bottomed; like them, they are made of riveted plates of sheet-bronze, and have ring-handles riding in cast bronze staples.² They formed the principal theme of the paper of 1930 by E. T. Leeds, in which the buckets were considered also;³ and they were given further attention next by Adolf Mahr⁴ and by Sir Cyril Fox,⁵ who commented especially on their distribution. This, as has since been recognized, extends from these islands down the west coast of France to Spain (fig. 10, p. 182).⁶ Central Europe, on the other hand, though its bronze industry created not only the Kurd bucket but also many other types of vessel,⁷ never made any cauldrons whatever like them. We therefore propose to name them 'Atlantic cauldrons'.

Of the two main classes into which Leeds divided them, Class A is distinguished by a short neck and above it by a rim which is bent first somewhat out into a lip, but is then turned horizontally inwards, to form a fairly broad flat top, and at its inner edge is turned down and rolled under round a stout bronze wire—unseen, but encircling and stiffening the cauldron's mouth.⁸ The neck, in all Leeds's examples, is strengthened by two or more horizontal corrugations.

In Class B the rim is not inbent, but everted at a slant, beneath which the neck is diminished into a mere constriction, separating the rim from the cauldron's swelling shoulder; the neck has no corrugations. Leeds claimed that the Class A cauldrons, opening the series, were modelled essentially on Oriental, and more directly on Greek prototypes. Knowledge of these will have reached Ireland and Britain from the Western Mediterranean in the early seventh century, when the

¹ In *The Problem of the Picts* (ed. Wainwright, 1955), 56–58. Note previously R. B. K. Stevenson on the pottery from Kildalton, Islay: *Proc. Soc. Antiq. Scot.* lxxvii (1944), 120–5.

² (Sir) J. Evans, *Anc. Bronze Impts.* (1881), 109–12.

³ *Archaeologia*, lxxx (1930), 1–36.

⁴ *Proc. R. Irish Acad.* xlii (1934), C (no. 3), 11–19; 26, map.

⁵ *Antiq. Journ.* xix (1939), 369–404 (on the second Llyn Fawr cauldron, and iron sword); map pl. lxxviii, opp. 381.

⁶ See p. 185 below.

⁷ The two standard accounts are by Sprockhoff (1930: above, p. 139, n. 3) and von Merhart (1952: above, p. 134, n. 2).

⁸ Occasionally, instead, a wooden hoop: Leeds, *op. cit.* 4.

Greek colonizing movement in South Italy and Sicily was at its height, and voyages farther west can have been initiated. In the Irish-British rendering of those prototypes, nevertheless, some features were introduced that were foreign to them. One was the inturning of the rim and its rolling under round a wire. Another was the corrugation of the neck. The cauldron here to be published has the first of these features, just as it has the ring-handles riding in cast staples. But it has no corrugation; and on that account it looks rather more like such Greek or Oriental cauldrons as Leeds was thinking of, than do his Class A cauldrons in the main (pl. XXI; fig. 7).

This cauldron was found at Colchester in Essex, in the excavations of 1932 on Sheepen Farm, in the middle-western area of the site which later, a generation before the Roman conquest of A.D. 43, the Belgic king Cunobelin made the centre of his capital Camulodunum. The discovery was recorded briefly at the time;¹ and in the Research Report on the excavations it was duly distinguished, along with such other prehistoric material as the site thus unexpectedly produced, from the material of the Belgic and Roman occupations in the first century A.D.² The exact position of the find is close to the south edge of Region 3 of the Camulodunum site, in the portion called Area B (N), at just over 105 ft. O.D. on the north brow of Sheepen Hill.³ Scattered elsewhere in this Region 3, the excavations came at various times on a number of more or less fragmentary bronze implements, and a large piece of coarse pottery, likewise of the Late Bronze Age. Below the hill to the east, cremation-burials in cinerary urns of the same period were discovered many years ago. There was therefore some occupation here in that period, which can explain the cauldron's presence.⁴

The cauldron was found buried (pl. XXI c) in an oval pit, dug in the gravel of which much of the hill is formed, and measuring nearly 5 ft. 6 in. from north to south, and 4 ft. from east to west, with floor just over 3 ft. deep. The cauldron lay upon this near the southern end of the pit, on its side, with its mouth to the east and its upper side about 6 in. below the top of the pit-filling, over which lay about 1 ft. of top-soil. The pit-filling consisted of small gravel, loose and earthy, which had filled the interior of the cauldron also, up to 9 in. from its upper side. These last 9 in. were filled with banded sandy silt, which had been brought in by water-seepage. Within the loose gravel inside the cauldron was found a very small piece of iron nail or stud, but nothing else.⁵ The cauldron, then, was buried deliberately, in a pit on a site with at least some other signs of occupation in its period, but with no more precise associations. The cauldron is in the Colchester and Essex Museum, and we are much indebted to the Curator, Mr. M. R. Hull, F.S.A., for executing the drawing reproduced here as fig. 7.

¹ *J.R.S.* xxiii (1933), 203-4, fig. 14.

² Hawkes and Hull, *Camulodunum* (Res. Rep. Soc. Antiq. xiv, 1947), 4.

³ *Ibid.*, pl. cviii, just south of the 'hearth or pit', 50 ft. east of Ditch I, which was the burnt clay patch in squarish hollow described *ibid.* 55.

⁴ It was followed by a fresh occupation in the earliest Iron Age, attested by a good deal of scattered pottery, but separated by a further interval from the

occupation in the first century A.D. under Cunobelin. These finds and their topographical significance at Colchester will be presented in a separate paper.

⁵ For the very occasional presence of iron already in Late Bronze Age contexts in southern England, see *Wilt. Arch. Mag.* xlvii (1936), 484 (Boscombe Down East); *Proc. Prehist. Soc.* i (1935), 36 (Plumpton Plain, Sussex).

Description. The cauldron's maximum diameter, across the body, is 26.5 in. (67.3 cm.); its depth is 19 in. (48.25 cm.). The body (now cracked and in some places fragmentary) is made from two pieces of sheet-bronze, a saucer-shaped bottom piece and a long strip, 11 in. across

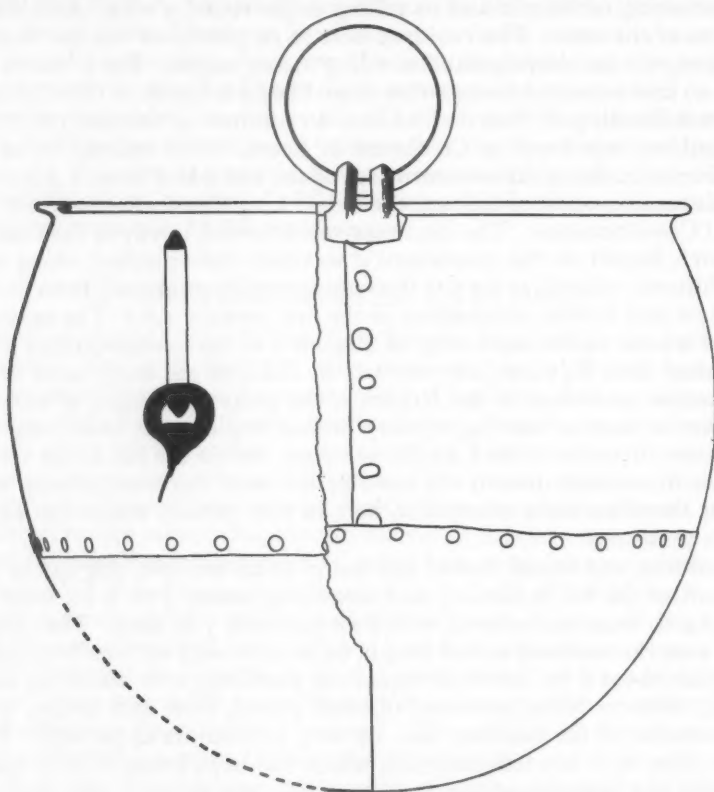


FIG. 7. Bronze cauldron, Sheepen Hill, Colchester. ($\frac{1}{2}$)

(27.95 cm.), brought round on itself to form the upper portion and rim; this piece has its two ends riveted together in a vertical seam, and has its lower edge riveted to the margin of the bottom piece, with bronze rivets having flat heads, placed on the outside, $\frac{1}{2}$ in. in diameter (1.27 cm.). The rim is formed by hammering the top edge of the upper piece outwards into a lip, leaving a constriction beneath this which is all there is for neck, and then bending it sharply inwards, to produce a flat rim-top 1 in. broad (2.54 cm.), finished at its inner edge by rolling under round a bronze wire, 0.2 in. across (0.51 cm.), made into a hoop 21 in. in diameter (53.34 cm.). The extreme diameter of the rim so formed, from lip to lip, is 23.3 in. (59.18 cm.). The technique attested by this rim-formation is of a high order, as there is no sign of any creasing of the hammered-over metal. The vessel's most remarkable feature, however, is its pair of handles. Each consists of a cast bronze ring, 5.5 in. in external diameter (13.97 cm.) and of triangular cross-section, with the faces 0.7 in. broad (1.78 cm.), base inwards and ridge

outwards, cast free within a staple formed by a pair of loops, of the same triangular cross-section, rising side by side, 0.4 in. apart (1.02 cm.), over the cauldron's rim from underneath it, where they spring from an inner and outer flat bronze plate, cast solid with them, which grip the sheet-metal of the neck firmly inside and out. The ring-handles thus ride free between the loops and the surface of the rim-top (pl. XXI *b*).

The following note on the technique of manufacture of the cauldron and its handles has been kindly supplied by Mr. Herbert Maryon, F.S.A.

The cauldron was formed in the usual manner from bronze plates riveted together. The loose ring-handles with their ridged staples are of particular interest technically. The ring-handles were probably cast first. Then, as there are no gaps in the staples through which the rings could have been inserted after the staples had been cast, it is clear that the rings must have been temporarily incorporated in the moulds for the staples, before the molten metal of these was run into them. Next, after the moulds had been removed and the faces of the staples cleaned up tidily, the staples were fitted into position on the rim of the cauldron. A fresh mould was built round each of them and the adjacent parts of the rim. Molten metal was then poured between them to fuse them together. On one of the staples (that opposite to the one shown in pl. XXI, *A*) the scar left by a 'runner' of the metal may still be seen; some of the liquid bronze has spread out over the adjacent surface of the rim; and a large mass of the new metal still remains on the inner side of the rim.

The Colchester cauldron, inasmuch as its rim is inbent and flat-topped, and not everted in an outward slant, is of Leeds's Class A. Further, inasmuch as its ring-handles ride free between the cast loops of their staples and the surface of the rim-top, it is of his Class A1. In A2 the staples are braced across the rim-top by transverse bars on each side of the loops, which rise between them to hold the rings; in A3 the bracing is continuous, so that the rim-top is entirely protected from contact with the free-riding rings. These A2 and A3 staples are thus more elaborate; and features of them are actually repeated on some cauldrons of Class B, which Leeds fully demonstrated to have been devised later than the first appearance of Class A, and to have lasted later than its last appearance. It is only the simpler staples that are wholly absent from Class B; and it was this fact, together with their simplicity itself, that most moved him to call the cauldrons possessing them A1, and set them at the head of the whole Atlantic series. The Colchester staples show a particular simplicity, moreover, in the flat plates which give the loops their seating beneath the cauldron's rim. These are quite plain and roughly formed: they have no bar-like extension sideways, nor tongue projecting downwards like the down-stroke of a T to steady them on the shoulder, as have most of the cauldrons of Class A. Only a few, all of Class A1, have the plates so simple;¹ and only one of these can be compared with the Colchester cauldron in respect both of these and of the loops above them, namely the A1 cauldron from the river Cherwell at Shipton in Oxfordshire, the discovery of which was the occasion of Leeds's paper.² As the Colchester staples have two loops side by side, so the Shipton staples have three; in all other known

¹ e.g. from Ireland, the cauldron W14 in Nat. Mus. Dublin, and that from Derreen, Co. Roscommon: Leeds, *op. cit.* 5 (former misprinted W12) and list, 31-32, nos. 5, 12.

² Leeds, *op. cit.* 1 ff., pls. 1, II, I, III, 1; hence Kendrick and Hawkes, *Arch. in E. & W.* 1914-31, 129-30, pl. XII, 3; XXI BRGK, 93-94, Taf. 13, c; *Ampurias*, xiv, 109, 118, lám. II, 1.

staples, however, the rings ride not in loops set side by side, but in a ring-holder formed as a single half-tube, its exterior most often moulded into ribs. It is this sort of ring-holder that we have seen on the staples of the Irish-British buckets, like that from Heathery Burn (p. 150, fig. 5): essentially a single loop broadened into half-tube form, and then varied externally, as a rule, by ribbing, and often by flanging at each end—though an early example of Class B has ornamental grooving only (Ireland W13: pl. xxii b), and another has ring-holders left quite plain (Cabárceno, N. Spain),¹ so that plain specimens of Class A probably remain to be discovered also. The Colchester and Shipton staples, with their two- and three-loop ring-holders, are certainly not the prototypes of the normal form.² They are variants; and geographically, moreover, their location is altogether peripheral in the distribution of their class which, but for them and for three normal specimens in Scotland, lies all in Ireland (fig. 10). In Ireland, without question, these cauldrons in the main were made;³ but while the Shipton vessel varies from the Irish in its staples, the Colchester one varies still more widely. Not only are its staples unique in having two loops: the cross-section of these, and that of the ring-handles riding in them too, is unique in being triangular. The cross-section of Class A rings is normally circular; and while there are four exceptions, and while in Class B the profiling may be more elaborate,⁴ a triangular section is unparalleled. And furthermore, as already mentioned, the Colchester cauldron lacks the corrugated neck which in Class A otherwise seems universal. Leeds was inclined to think the Shipton cauldron, on account of its staples, a South English imitation of the Irish type;⁵ in the Colchester one, the type is varied considerably further, and the same suggestion may accordingly be made for it, with still greater probability.

But does this suggestion, if it explains the Colchester cauldron's unusual handles, also explain sufficiently its lack of a corrugated neck? Perhaps a further explanation may be offered. We have seen already that the prototypes of Atlantic cauldrons were claimed by Leeds to be Greek or Oriental, brought by the Mediterranean, and that the corrugation of the neck is foreign to them. But foreign to them also (p. 181) is the rolling of the rim-end round a wire. And that device is universal on the buckets, both those of the continental European Kurd type and their Irish-British derivatives likewise (p. 148). That the latter buckets are broadly contemporary with the known majority of the cauldrons, is most obviously declared in the Irish-British abandonment of the Kurd type's sheet-bronze ring-holders, in favour of cast staples (p. 146), which are essentially identical with those of the normal cauldrons of Class A, and of the simpler ones of Class B1. Since these, as will soon be further shown, came to the cauldrons from their Mediterranean prototypes, it can be safely concluded that they were transferred to the buckets from the cauldrons. Conversely, then, the wiring of the rim-end will have been transferred to the cauldrons from the buckets. Just as this is a device for stiffening the rim, so too is corrugation a device for stiffening the metal below the rim. That it would be useful for stiffening the necks of cauldrons, of the normal Class A form, could have been

¹ For these see below, pp. 183-5.

² Leeds, *op. cit.* 20 (Shipton).

³ *Ibid.* 20-23.

⁴ *Ibid.* 7-8, 11-15.

⁵ *Ibid.* 23.

suggested likewise by the buckets, if any of the Kurd type imported from the Continent had the corrugation of their projecting shoulder, which we have above remarked on (p. 138). The Nannau bucket indeed has not got it, nor have the two with secondary Irish staples, and the 'Dowris' bucket has it only in a reduced and purely ornamental form (pp. 135-6, fig. 2). But then otion remains quite possible. Our bronze-smiths, new to the sheet-metal work which these imported models showed to them, seem to have pooled the features they most liked, continental and Mediterranean together.

Yet if so, the degree to which they used them all will naturally not have been quite constant. On those Irish-British buckets that have come to light, corrugation of the shoulder has not been used. We need not be surprised, then, to find corrugation of the neck not universal on the Class A cauldrons. The maker of the Colchester cauldron may or may not have known that Mediterranean cauldrons did not have it. He was an excellent sheet-bronze worker, as the skilful inbending of his rim declares, and could have used corrugation had he wished to. But he preferred to do without it. And indeed, it was before long rejected altogether. When Class B cauldrons began to be made, which Leeds showed was well before Class A ceased (pp. 183-4 below), their makers gave it up. They also gave up the difficult business of inbending the rim, so that everted rims became universal in Class B, though their stiffening with the needful rigidity proved far from easy. There was then perhaps a line of continuity, by-passing the vogue for corrugation, from the cauldrons' Mediterranean prototypes, by way of Class A cauldrons like the Colchester one, to the Class B cauldrons which became presently everywhere preferred. The Colchester cauldron, could even, in fact, despite the simplicity of its staples, belong to the phase of overlap in currency between Classes A and B.

What will that mean in absolute chronology? We have already found that the buckets, as the other chief elements in the picture, can be quite closely dated in relation to Central Europe. But some will still ask, should not more retardation be allowed for, in dealing with our Atlantic lands? In a general way, opinions on that matter have often disagreed with that put forward here.¹ We will therefore next turn back to Leeds's case for deriving the Atlantic cauldrons, by way of the Mediterranean, from Greek or Oriental ones. For the bucket derivation must have been effected across the Continent; but this, essentially, by sea. With it, then, the question of retardation takes on a different look. And the prototypes, if prototypes they are, should be datable independently of Central Europe, in terms of Classical or Oriental absolute chronology—and better today, perhaps, than when this whole possibility first occurred to Leeds, nearly thirty years ago.

E. GREEK AND ORIENTAL CAULDRONS

In Archaic Greece the primary type of bronze cauldron was the native *lebes* (λέβης), the tradition of which went back, without any probable interruption, to Mycenaean and Minoan times. It had a flattened-hemispherical body, with a rim which might be slightly incurved, and thickened internally for strength, but externally was quite

¹ See pp. 156-7 (Mr. Proudfoot); 186-7 (Dr. MacWhite).

plain and unprofiled. It is best known in the ceremonial or dedicatory form found mainly in sanctuaries, with three bronze legs, riveted to a body most often cast, making it a tripod-cauldron; and it then has handles. But they are always vertical fixed rings, cast in one with a strap-shaped vertical tie and a horizontal seating-plate for riveting to its shoulder.¹ None of its features, in fact, can have inspired our Atlantic cauldrons. When, in the eighth century B.C., it begins to be attested sometimes in hammered sheet-metal,² and also, though at first most rarely, to be made in a variant form which has a profiled rim,³ these modifications of it are borrowings. They are proper to cauldrons other than the traditional Greek lebes, and originally not Greek but Oriental; and it is among these, hammered and with profiled rims, that we find also, for the first time, ring-handles riding free in staples. It is here, in other words, that we first encounter features like those of Atlantic cauldrons: they come to the Mediterranean world from the East, and their context is the 'Orientalizing' movement which affected that world so powerfully in the eighth and seventh centuries.

The Greek name for a large bowl or cauldron that is not a lebes (as defined above) is *dinos* (δῖνος). It is with the *dinos* that the variant characters just noticed in the lebes are to be connected:⁴ the *dinos* made typically in sheet-metal, and with a distinctly fashioned rim. And this *dinos* cauldron, which when handled has free-riding handles, only appears among the Greeks and their neighbours after the fresh connexions had been begun with Asia, in the early to middle eighth century, which gave rise to the Orientalizing movement. That is not surprising. The raising of large vessels—especially rimmed ones—by hammering from single sheets of metal, and the engaging of free rings in staples by casting them together in multiple clay moulds, are both among the accomplishments of an advanced bronze industry. European bronze-workers before this time could hammer single sheets into small-sized vessels only: the Kurd buckets considered above, for instance, had to be made of two sheets at least. In Western Asia, on the other hand, sheet-working had been carried further; and casting had been brought to a point at which such a product as a free-ring handle is no matter for surprise. Where Western Asia met the Mediterranean, bronze-working among the maritime peoples was led by Cyprus and

¹ A. Furtwängler, *Olympia*, iv (1890), 73–93, with Taf. xxvii–xxxiv; K. Schwendemann in *Jahrb. d. Deutsch. Arch. Inst.* xxxvi (1921), 98–185; A. Evans, *The Palace of Minos*, ii, 2 (1928), 623 ff.; W. Lamb, *Greek and Roman Bronzes* (1929), 11–17, 32–35, 44–47, 70–72, 131–2; S. Benton in *Ann. Br. Sch. Athens*, xxxv (1938), 45 ff., 56–70, pls. 10–17; and 'The Evolution of the Tripod-Lebes', *ibid.* 74–130, pls. 18–26.

² Benton, *op. cit.* 79, 90–91, 114, 120–4: c. 750–700 B.C., and so made 'Class 3', instead of 'II' as by Furtwängler, *op. cit.* 81–90, nos. 583 ff., Taf. xxvii, xxxi–xxxiii.

³ Furtwängler, *op. cit.* 80, no. 582a (c. 700?), and 73, the small model no. 535; both Taf. xxvii. Cf. that depicted on an early Corinthian vase, late

seventh century: H. G. G. Payne, *Necrocorinthia* (1931), pl. 20, 2. Later, from the sixth century to the fourth, there are vases and coins that portray tripod cauldrons with a developed profile of everted rim, straight neck, and bold shoulder; but they all retain the vertical fixed handles of the older lebes. Leeds cited these in comparison with Atlantic cauldrons: *Archaeologia*, lxxx (1930), 27, with fig. 11 (coins) and vase references, n. 5, taken from Schwendemann, *op. cit.* 127; really, however, they do no more than show the lebes as modified in the later sequels of the movement which concerns our cauldrons only in its beginnings, and are thus (like Leeds's equally late pottery comparisons, *ibid.*) relevant here only very indirectly.

⁴ Benton, *op. cit.* 112.

Phoenicia; but in addition, over against these to north-east and north, there was North Syria, which is of particular importance to us for a more far-reaching reason—namely its direct connexion, across the Euphrates eastwards, with the metal-rich country of the Armenian highlands. For there, in the kingdom of Urartu (Ararat), with its heart about Lake Van, was a bronze industry of ancient tradition, which was now at the peak of its own proficiency and trading strength, in the hands of a population to which that of North Syria had kindred elements. The enemy of Urartu was the military power of Assyria, which, from the east and south, was in the later ninth century brought against the North Syrian cities. But its hold thereafter weakened; and Urartu, in the early eighth, advanced and took North Syria under suzerainty. The production and distribution of Urartian bronzework could thus be spread, from its Armenian centres, this way to the Mediterranean coast. And just here lies the seaport, Al Mina at the mouth of the Orontes, where Sir Leonard Woolley's excavations proved, from just this time in the early eighth century onwards, trade with North Syria by the Greeks.¹ Professor Sidney Smith was able consequently, writing in 1942,² to claim as merchandise of the Al Mina trade the imports from this region, or from Urartu through it, which have been found distributed in the Archaic Greek world, and as far as Etruscan Italy. These have come to be recognized, during the last half-century, as having a prime significance for the inspiration there of Orientalizing art and craftsmanship. Among them, and among them only, at the outset, there were cauldrons with free ring-handles. Such cauldrons initially, it seems, were peculiar to Urartu; only trade with Urartu, by Al Mina or by whatever route, will account for their primary diffusion.

What has drawn recognition for this is the ceremonial form of cauldron with its shoulder apotropaically set with bronze projecting beast-heads, and its rim thickened, with a slightly everted lip, and bearing a confronted pair of cast bronze handle-attachments moulded in the shape of human-faced figure-protoms, with bird's wings and tail—the wings riveted outspread along the rim's exterior as seating-plate for a central staple, set vertically between the head and tail, in which the free ring-handle rides. These 'siren' (or less properly 'Assur') attachments,³ which naturally are often extant without their cauldrons, have a distribution stretching from the Urartian capital region on Lake Van, over the Greek islands and mainland, to Italy, whence our fig. 8, A, B show them on two of the four of these imported beast-head cauldrons that are known from Etruscan tombs.⁴ In Greece the importing of such cauldrons led presently to their imitation, rendered in the Orientalizing manner which Greek craftsmen were thus acquiring; imported and Greek-made 'sirens' can be distinguished; and the beast-heads on the vessels' shoulder are regularly gryphons—these being in fact the 'gryphon cauldrons' or

¹ Sir L. Woolley in *Antiq. Journ.* xvii (1937), 1-15; *Journ. Hellenic Studies*, lviii (1938), 1-30, 133-70; the early Greek pottery: M. Robertson *ibid.* lx (1940), 2-21.

² Sidney Smith, 'The Greek Trade at Al Mina', *Antiq. Journ.* xxii (1942), 87-112.

³ List and classic study (with the earlier literature): E. Kunze, *Kretische Bronzereliefs* (1931),

267-80, with Beilage 6: supplemented by him in *Reinecke-Festschrift* (1950), 96-101, with Taf. 16 (Argive Heraion), and in *Bericht über die Ausgrabungen in Olympia* (1956), 81; see also Jantzen cited below (p. 168, n. 2) and Mrs. Maxwell-Hyslop below (*ibid.*, n. 4), 151, pl. xxvi, and 167.

⁴ After Randall-MacIver, *The Etruscans* (1927), 75, fig. 9.

'gryphon bowls', first classified by Furtwängler¹ and now most recently by U. Jantzen,² which by about 700 seem to have transcended the old tripod-lebes as ceremonial or dedicatory vessels in Greek sanctuaries. Those made with 'sirens' are regularly early.³ Similarly in Etruria, there are sirens on three of the four certainly imported beast-head cauldrons: the two from the tomb called the Circle of the

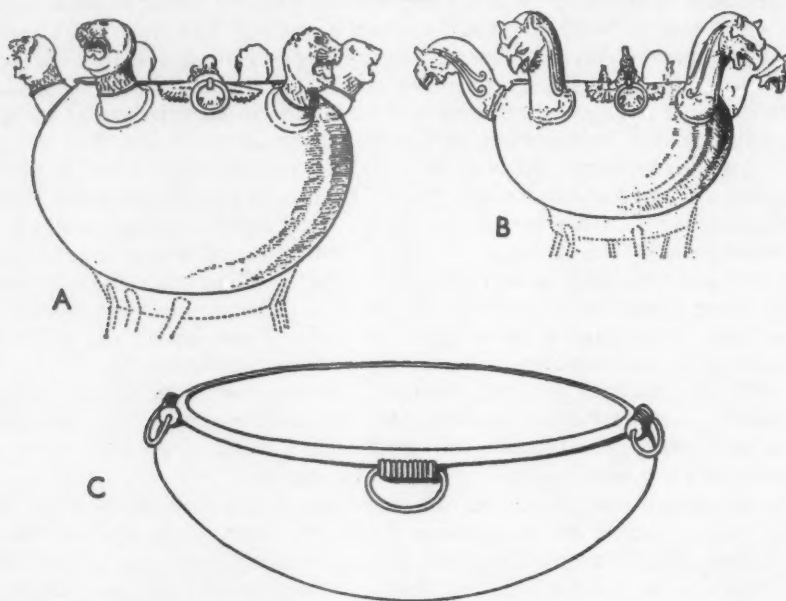


FIG. 8. Mediterranean bronze cauldrons. A, B. Cauldrons from the Circolo dei Lebeti at Vetulonia (after Randall-MacIver). C. Cauldron from the Fusco cemetery at Syracuse (after Orsi).

Cauldrons at Vetulonia (our fig. 8, A, B)⁴ and the one from the Bernardini tomb at Palestrina;⁵ the fourth, from the Barberini tomb there,⁶ can have had and lost them.⁷ Those from the Regolini-Galassi tomb at Cervetri, which are the only others known

¹ *Olympia*, iv, 115-31, Taf. XLIV-XLIX; cf. Lamb, *op. cit.* 70-72, and see further p. 197 below (La Colombe); Benton, *op. cit.* 124-6.

² In his *Griechische Greifenkessel* (Berlin, 1955); reviewed by G. M. A. Hanfmann, *Gnomon*, xxix (1957), 241-8.

³ Jantzen's chronology, *ibid.* 84-86: early groups all before 650.

⁴ *Not. Scavi* (1913), 429 ff., figs. 7, 8, 14; D. Randall-MacIver, *Villanovans and Early Etruscans* (1924), 132-3, fig. 44 (lion heads, normal 'sirens') and 45 (gryphon heads, bifacial bearded male 'sirens' with tall back-bent caps or helmets, declared

Uratian by K. R. Maxwell-Hyslop, *Iraq*, xviii, 2 (1956), 151-2, with pl. xxxiii, 4-5).

⁵ Randall-MacIver, *op. cit.* 220, 264, no. 75; Curtis in *Mem. Amer. Acad. Rome*, iii (1919), 72, pls. 52-54; heads gryphon.

⁶ Randall-MacIver, *op. cit.* 226, 268, nos. 39-40 (pl. 42, 6); Curtis, *ibid.* v (1925), 45, pls. 29-31; Kunze, *op. cit.*, Beilage, 7; Maxwell-Hyslop, *op. cit.* 152 ff., pl. xxvii, and see p. 170 with nn. 3, 4; heads lion and gryphon alternating.

⁷ Jantzen, *op. cit.* 43; one can have been Kunze's no. 50.

with beast-heads but were found with somewhat later pottery and must be rated anyhow local copies, have not had any 'sirens'.¹

There is also an alternative form of Urartian ceremonial cauldron which has its beast-heads—those in the known examples being bulls—set against the rim in the place of human-headed 'sirens'. Like those, they have a flat seating-plate with feathered wings and tail; also, in most cases, they are cast with staples for the usual free ring-handles, projecting from the head behind the horns.² These bull-head handle-attachments are known both from Armenia—on Lake Van, at Topruk Kale (the Urartian capital)³ and farther north (near Erivan) at Karmir Blur⁴—from Cyprus,⁵ from Samos,⁶ and from Italy on a fine cauldron stated to have been found at Cumae, presumably in a tomb or other deposit belonging to the early Greek colony there (Kyme).⁷ Similar bull-heads on one of the bronze rod tripods, which these cauldrons could be stood upon, have been noted from Cervetri,⁸ and such tripods regularly have bulls' feet:⁹ they are Urartian too. Another was found at Palestrina in the Bernardini tomb, supporting a plain cauldron but associated with the 'siren'-handled one above remarked on;¹⁰ and a very large and fine tripod, supporting a cauldron with four bull-heads which are ringless but no less fine, was discovered in 1938 at Altintepe, in western Armenia near Erzincan.¹¹ The early Greek form of rod tripod, which is similarly built, thus seems derived from Urartu, just like the Greek gryphon cauldrons.¹² Indeed, both tripods and gryphons, in

¹ Randall-MacIver, *op. cit.* 202-3, 206, nos. 87-89 (pl. 37); L. Pareti, *La Tomba Regolini-Galassi* (1947), 234, no. 196, Tav. xx-xxi, from the cella deposit, dated by him 650-630; 306-7, nos. 307-8, Tav. xl, from the antechamber/left niche deposit, dated by him 630-610; see 510-11 for these dates.

² On these see P. Amandry in *The Aegean and the Near East: Studies presented to Hetty Goldman* (1956), 239-61.

³ R. D. Barnett, *Iraq*, xii (1950), 1-39, bull-heads, 19, pl. xvi.

⁴ In the excavations of B. B. Piotrovsky (*Karmir-Blur*, i-iii: Akademii Nauk Armyanskoy SSR, Erivan, 1950-2-5), summarized by him in *New Contributions to the Study of Ancient Civilization in the USSR: Report of the Soviet Delegations at the X. International Congress (1955) of Historical Sciences in Rome* (Moscow, 1955; Russian and English; cf. also the *Atti* of the Congress, publ. Florence, 1955), and by M. Pallottino in *Archeologia Classica*, vii, 2 (Florence, 1955; see n. 12 below), 109-23, citing further literature, and figuring bull-head attachment Tav. xlviii, 4. The same is fig. 8 (p. 137) in the summary of *Karmir-Blur*, i (1950), by R. D. Barnett and W. Watson, *Iraq*, xiv (1952), 132-47.

⁵ E. Gjerstad, *The Swedish Cyprus Expedition*, ii, 581-2, Type 13; pl. clxxix, 290.

⁶ Jantzen, *op. cit.*, Taf. 60.

⁷ Copenhagen, National Museum: N. Breitenstein, *Fra Nationalmuseets Arbejdsmark* (1952), 12, fig. 5; Jantzen, *op. cit.* 42; Pallottino, *op. cit.* 117, Tav. xix, 3.

⁸ By Mrs. Maxwell-Hyslop, *op. cit.* 164, citing Giglioli, *L'Arte Etrusca* (1935), Tav. xxii, 3.

⁹ P. J. Riis, 'Rod Tripods', in *Acta Archaeologica*, x (1939), 1-30; on the Urartian inspiration of his 'Early Greek Group', into which that tripod falls, see n. 12 below.

¹⁰ Randall-MacIver, *op. cit.* 220, 264, no. 72 (pl. 42, 1); Curtis, *op. cit.* iii, 70, pl. 49; declared Urartian: Maxwell-Hyslop, *op. cit.* 153.

¹¹ H. H. von der Osten in *Ber. VI. Internaz. Kongr. f. Arch.* (1939) (Berlin, 1940), 225 ff., Taf. 9a; H. T. Bossert, *Altanatolien* (1942), 91, and Taf. 313, no. 1194; Barnett and Gökce in *Anatolian Studies*, iii (1953), 53 ff.; Pallottino, *op. cit.* 118, Tav. xlix, 1; Maxwell-Hyslop, *op. cit.* 153.

¹² Though there is a tripod of this type at Erlangen coming from Lake Van (Smith, *op. cit.* 104, with references), it was the Altintepe find that did most to bring out this view of Riis' 'Early Greek Group' (see n. 9), while confirming his early date for it. On this and on the relationship between these and the dissimilar 'Cypro-Phoenician' tripods, see Pallottino, *op. cit.* 118-19; and on the analysis of Urartian and Urartian-inspired tripods altogether, Amandry, *op. cit.* 251 ff.

Etruria as well as Greece, have sometimes been thought Greek-made. The distinguishing of Greek work from Urartian is a question on which views may differ.¹ But of Urartian imports and inspiration as a fact, there can in no case be question. Their significance for Greece and Etruria alike has reviewed recently by Pallottino.² And Mrs. Maxwell-Hyslop, re-examining the Etruscan side of the matter still more recently,³ has widened and illumined the recognition in Etruria of direct Urartian and North Syrian imports—not Greek renderings, but originals, though brought very possibly by Greek merchantmen—notably in the tall conical sheet-bronze stands, a form of support for bowls or cauldrons more primitive than the tripod, and soon to be superseded by it, which yet enjoyed in this period an impressive culmination. These stands appear with the earlier of the gryphon cauldrons in Greece; in the tombs of Etruria, they are represented both by many pottery copies and also by rare but splendid bronze originals. That found at Palestrina in the Barberini tomb, with the cauldron above mentioned, is notable above all for its relief decoration, in a design dominated by majestic lion-sphinxes, which immediately recalls this period's monumental sculpture in North Syria.⁴ It was as vessels of high prestige, serving solemn religious ceremonial, in fact, that the West first received these Oriental cauldrons. And the detailed splendour of their appurtenances enables their origin not only to be localized, as we have seen, but to be closely dated too. They must have begun to reach the West well before the end of the eighth century B.C.

The prime reason for this is the historical one,⁵ that in 743/42 the Assyrian king Tiglath-Pileser III, resuming the offensive westwards, flung back the Urartians from North Syria and conquered it. From at any rate 740, then, while the Al Mina trade indeed continued, it can no longer have dealt much in goods produced either by the Urartians, enemies now and confined inside Armenia, or by North Syrians in their native style, which was extinguished. And though Urartian goods can certainly, for a while, have reached Greece along the Black Sea or by land through Anatolia, their homeland was now declining: it was assailed in 714 in a crushing campaign by the Assyrian Sargon, and was prostrated again directly afterwards by the Cimmerian invasion, and later by the Scythians. From the turn of the eighth and seventh centuries onwards, indeed, if trade that way is represented in the West by Oriental metal products, they seem to be less Urartian than Iranian, most notably from Luristan,⁶ and do not here concern us. What does concern us, primarily, is what will have come from Urartu and North Syria through Al Mina—whether before 743–40, or with refugees then escaping from Tiglath-Pileser's North Syrian conquest. The middle years and third quarter of the eighth century, then, will cover the primary reception in Greece and Etruria of the metalwork including ring-handled hammered cauldrons, and that of refugees in 743–40; these would include moreover craftsmen, whom the Western trade would welcome, both

¹ Jantzen's views are summarized for gryphon cauldrons *op. cit.* 14–54; for tripods 87–94.

² *Archeologia Classica*, vii, 2, 109–23; see p. 169, n. 4.

³ *Iraq*, xviii, 2, 150–67; see notes to pp. 167–9

above.

⁴ *Ibid.*, pls. xxviii–xxx; Curtis, *Mem. Amer. Acad. Rome*, v (1925), 44, pls. 28–29.

⁵ Smith, *op. cit.* 99; Maxwell-Hyslop, *op. cit.* 165.

⁶ Maxwell-Hyslop, *ibid.* 159–64.

to resume their crafts and to teach them to Western imitators. Use of Black Sea and land routes, continuing thereafter, will have prolonged the incomings through the fourth quarter of the century, when there can have been further refugees from the Assyrian and Cimmerian invaders of Urartu.¹ But by the end of the eighth century, and in the first half of the seventh, the producers in Greece and Italy will have replaced the Urartian and North Syrian by their own imitated work, leading on to their recognized subsequent developments. Original Oriental bronzes could indeed, in Etruria anyhow, remain in use long enough to be entombed after the middle of the seventh century; for among the rich tomb-groups that we have mentioned there is pottery with Greek and silverware with Phoenician relationships that forbid their dates of deposit to be earlier.² But in no way can that upset the certainty, taken all round, of these bronzes' eighth-century origin and arrival. Thus it is entirely in order that the Greek vogue of the gryphon cauldron should be illustrated, in portrayals painted on Protocorinthian vases, first on an oinochoe of the second half of the eighth century,³ and then on an aryballos of the early seventh.⁴ What we have here altogether is a leading case in the Orientalizing process, with its background in the Near Eastern tensions raised by the militarism of Assyria; we may compare what Mr. Barnett has written of the art of ivory carving, as another case with this same context.⁵

Naturally, once the art of hammering big vessels out in a single piece was learnt, its use did not remain confined to ceremonial cauldrons. In Etruria, by the time of the seventh-century tombs, plain ones had become abundant. That the same thing happened in Greece cannot be doubted: plain dinos cauldrons are well attested, for example, from the seventh-century cemetery of Arkades in Crete,⁶ and there is a well-dated one from the Archaic cemetery on the island of Thera, found in a grave with an early Protocorinthian lekythos and aryballos of around or soon after 700.⁷ This was claimed by its discoverers as cast; but the hammered technique is further displayed in the dinos fragments from the sanctuary of Perachora, which are of thin sheet with a simple short everted rim.⁸ The sea-borne distribution was no doubt

¹ So Mr. Barnett in *Iraq*, xii (1950), 39.

² The contrary suggestions uttered tentatively at the end of Mrs. Maxwell-Hyslop's paper (*op. cit.* 165-6) can hardly be admitted. What range of disagreement there may still be in the dating of the relevant Greek pottery is surely not wide enough to admit them; nor in any case can one alter the seventh-century dating of these tombs' Phoenician or Cyprian-Phoenician silver. Their Urartian bronzes were therefore old when buried. We are indebted to Dr. Hugh Hencken, F.S.A., for his views on this and various related topics. It should perhaps be added that nothing in all this commits one necessarily to belief in an Oriental origin for the Etruscans as a people; that belief, if held, has to be based in the first place on other grounds.

³ G. M. A. Richter, *Handbook of the Greek Collections: Metropolitan Museum of Art*, New York

(1953), 35, pl. 23a. We owe this and the next reference to the kindness of Miss Benton.

⁴ H. G. G. Payne, *Protocorinthische Vasenmalerei* (1933), 21, Taf. 9, 3. Painted on the other side is a rather broad-shouldered lebes: cf. p. 174 below.

⁵ *Journ. Hellenic Studies*, lxxviii (1948), 1-25; see esp. 7-8.

⁶ D. Levi in *Ann. della R. Scuola Arch. di Atene*, x-xii (1927-9), 472-5, figs. 590a, 3, and 590b, 3, 4, 7. For the importance of Crete in the Orientalizing movement see Maxwell-Hyslop, *op. cit.* 159-60, further to Kunze and others there cited.

⁷ H. Dragendorff, *Thera*, ii (1903), 29, Abb. 78 (grave 17D).

⁸ H. G. G. Payne and others, *Perachora*, i (1940), 160, a number found; rim fragments are pl. 63, 6, 9.

enhanced by production in Cyprus;¹ and another area prominent for finds of cauldrons—whether introduced by sea or from Urartu direct by land—is middle-west Anatolia, which, until in the course of the seventh century it was reached by the Cimmerian invasion, was dominated by the kingdom of the Phrygians, with its capital at Gordion. Knowledge of this is due soon to be increased by the results of the recent American excavations there; but the Phrygian culture of the eighth and early seventh centuries, corresponding to Alishar IV² and fixed also chronologically at Boghazköy,³ was illumined already by the German excavations of over fifty years ago. And these yielded cauldrons to which attention was drawn by Leeds, for their relationship to our Atlantic vessels. In the group of five Phrygian tumuli excavated by the brothers Körte at Gordion and published in 1904, dated by pottery and fibulae around the turn of the eighth and seventh centuries, Tumulus IV produced two handleless bronze cauldrons, with rounded body and everted rim,⁴ and in Tumulus III⁵ there were six: one small and fragmentary, and five—three small, one medium-sized, one large—with free ring-handles. These five were the cauldrons signalized by Leeds.⁶ Their free-riding ring-handles were nearly all of iron (those missing being declared so by rusty traces); only one had bronze rings, that shown bottom right in Leeds's figure. The partial use of iron in such work is in no way surprising by this date in Anatolia (where the Hittites had led the world in promoting an iron industry in the second millennium), even though in the Urartian inception of these cauldrons' type, and throughout its initial Mediterranean diffusion, all its features are found carried out in bronze. The staples holding the rings, on the other hand, were short thick tubes of cast bronze (though one had been replaced in iron—Leeds's top left), and were riveted, sometimes with iron rivets, to the cauldrons' stout bronze body (claimed by the excavators as cast) just outside and below the everted rim. They were seated in the middle of a horizontal bar, or plate, which took the rivets; in one cauldron—Leeds's top right—the bars have extensions which go all round and meet; and on the large one—his top right—a short broad tongue protrudes from its lower edge, beneath the ring, to steady it against the vessel's shoulder.⁷ This gives the plate the T-shaped form which Leeds noticed as normal to his Class A of the Atlantic cauldrons (p. 163). It may be seen as the 'utility' form that has its decorative rendering in the Urartian 'siren' and

¹ As suggested by Körte, cited below (n. 4), 95; further on Cyprus in the Orientalizing movement, see Maxwell-Hyslop, *op. cit.* 164, in connexion especially with the Al Mina sea-route.

² H. H. von der Osten, *The Alishar Hüyük*, 1930-2, ii (1937), 287 ff.

³ K. Bittel and G. Güterbock, *Bogazköy* (1935), 52 ff.; see moreover Smith, *op. cit.* 95, citing also the Pazarli site, and showing that Phrygia was not connected directly with Al Mina by the Cilician coast.

⁴ A. und G. Körte, *Gordion: Jahrb. d. Deutsch. Arch. Inst. Ergänzungsheft*, v (1904), 110-11, Abb. 73-74 (rim d. 22.5 and 21 cm.).

⁵ Körte, *op. cit.* 38-98; dating, around 700, 98.

⁶ *Archaeologia*, lxxx (1930), 26, with fig. 10,

which is from Körte, *op. cit.* as follows: Leeds's top right is the large cauldron (rim d. 54 cm.) Abb. 44-45, with lid having animal-sculptured wooden handle (Taf. 5: reproduced by H. T. Bossert, *Altanatolien* (1942), 84, Taf. 286, nos. 1091-3); Leeds's top left is the medium-sized one, Abb. 46 (rim d. 29 cm.); bottom right and left are the smaller ones Abb. 48 (rim d. 15.5 cm., bronze rings) and 47, which the fifth, not illustrated, resembled (rim d. 17.5 cm.); the fragmentary sixth cauldron was still smaller.

⁷ The narrow strip extending below this in Leeds's drawing is really, as a look at the original German picture shows, a corrosion-mark on the cauldron's body.

bull-head attachments described already (pp. 167-9), with wings out and tail protruding down (fig. 8, A, B); and a further version in Greece—known from Olympia¹ and also Perachora²—preserves the shaping of these in a simplified form which is halfway back to the 'utility', so that our general correlation of the ceremonial and the simple dinos is borne neatly out.³

It is borne out also in the copies of cauldrons which the Phrygians made in pottery. The largest of the cauldrons in Tumulus III at Gordion stood on a tripod and contained a mass of pottery, which included two of these copies, showing the prototypes' staples and handle-rings rendered plastically in the clay.⁴ The type is now seen to have been common in the Phrygian culture;⁵ moreover, it can appear there in painted pottery, and the excavations at Büyük Kale have not only illustrated this, around the turn of the eighth to seventh centuries, with pieces showing the plastic handle-form,⁶ but also produced pieces of a painted pottery ceremonial cauldron older than those and set with lions' heads,⁷ evidently copying an Urartian metal one such as fig. 8, A. It may be noticed, too, that in the actual staple that holds its ring, the 'siren' attachment is no less simple (again fig. 8, A) than are the Gordion ones, while those also are found repeated—as just such a simple short-tube staple from Olympia shows⁸—in Greece. The Greeks then had both simple as well as ceremonial cauldrons, and also simple handle-attachments as well as 'sirens'. But next, they soon began to vary their simple staples, by giving them ribs or mouldings. Just as Phrygia, among the late eighth-century grave-goods from tumuli on the Mausoleum Hill at Ankara, can produce a staple already triply moulded,⁹ so on Greek sites, where free-riding bronze ring-handles of various sorts are liable to be discovered,¹⁰ most often lying loose, their staples show a development of multiple mouldings;¹¹ and with these, an elongation of the tube. That this could be carried quite far already by about 650, is shown on the cauldron from Greek Sicily shown in fig. 8, c, found in a grave in the Fusco cemetery at Syracuse with a Protocorinthian pear-shaped aryballos, of the middle seventh century.¹² The handles here, now increased to four in number, have their rings riding in staples of elongated tube shape, with multiple mouldings. And it has been observed that such tube- or reel-shaped staples, however varied in detail, became the regular moulded form—one can of course still find humbler plain ones—in the Greek world from Late Archaic times onwards.¹³ Since the earlier of our Atlantic cauldrons, Class A, have only plain-ring

¹ Furtwängler, *op. cit.* iv, 133 (fig.), no. 838.

² Payne, etc., *op. cit.* i, 106, pl. 35, 4; 168, pl. 67, 10-11 (pair); for occurrence also later, see Robinson, *Olynthus*, x, 252, pl. LXVIII.

³ Perceived already by Körte, *op. cit.* 71.

⁴ Körte, *op. cit.* 67-71, Abb. 43 (rim d. 16.5 and 17.5 cm.); hence Bossert, *op. cit.*, nos. 1087-8.

⁵ Türk Tarih Belleten, xi (1947), 74.

⁶ H. Otto in Mitt. d. Deutsch. Orient-Gesellschaft, lxxviii (1940), 57-58, Abb. 15.

⁷ Ibid. 61-62, Abb. 10, 5.

⁸ Furtwängler, *op. cit.* iv, 133 (fig.), no. 837.

⁹ Türk Tarih Belleten, xi (1947), 73-74, pl. XXI, fig. 43.

¹⁰ Olympia: Furtwängler, *op. cit.* iv, 131 ff., with text-figs. and Taf. 1. Perachora: Payne, etc., *op. cit.* i, 161-3, pls. 65-68; on pyxis-lids too, 158, pl. 60, 8, 10. For the abundance of them later in Greece, with penannular and other forms of drop-handle, cf. Robinson, *Olynthus*, x (1941), 183-4, 229 ff., 249-52, pls. xxxvii-xlii, lvi-lxvii.

¹¹ On their further affinities see Jacobsthal, *Greek Pins* (1956), 46-47 and 153 ff.

¹² P. Orsi in *Not. Scavi* (1903), 533-4 (fig.; the body, though amenable to a measured drawing at the time of excavation, was of bronze sheet too fragile to survive it).

¹³ Payne in *Perachora*, i, 106.

or short-ribbed staples, a Mediterranean inspiration for them will be best kept somewhat earlier, on this showing, than the middle seventh century.

Similarly, the Fusco cauldron has the broad-shouldered body-form, with rim turned over as a lip, which illustrates the improved Greek mastery of hammer-craft by then attained. This is not much in evidence at Perachora, where the dinos rims¹ are everted but distinctly flimsy-looking, even when strengthened by turning over (in one case doubly, in another with an iron stiffening-bar) and by scalloping or 'studding'.² The Oriental cauldrons, and their closer imitations which those from Etruscan tombs best illustrate, have the rim hammered up thick, with the short everting of lip already noticed, standing above a still quite drooping shoulder (as fig. 8, A, B). Broadening the shoulder, however, allowed a thinner rim which yet was strong; and as well as the form seen in the Fusco example there ensued still more inbent ones, which needed a slight lip only, or even none, and so brought the dinos to differ little, or not at all, in shape from the old Greek lebes. The result can be seen, for instance, in de Ridder's dictionary-article 'Lebes',³ and his conspectus of Greek cauldrons in the Louvre.⁴ All this sort of thing shows the maturer workmanship of the Greek and Italian world in general from within the seventh century onwards; and in this way were developed, before long, the very inbent cauldrons to be noticed in our last section (p. 195). The greatest degree of likeness in Mediterranean cauldrons to Atlantic ones, thus, appears rather in the period before and after 700, than in that from around 650 onwards.

The same thing is shown, as well and even better, in the renderings of cauldrons by the Greeks in pottery, in which Phrygia was soon excelled by Rhodes and Crete. Their evident copying of detail, in shape of rim and handles, shows that bronze prototypes with like features must have been familiar to their makers. The later of these pottery dinoi, which their style of painting helps to date around the middle of the seventh century and a little after, are provided with a foot, and have their plastic ring-and-staple handles set on the shoulder, as have some of the more inbent bronze cauldrons just referred to. This sort of dinos is prominent in the pottery from the Cretan cemetery at Arkades,⁵ and a Rhodian example was figured by Leeds, who noticed that it had ribbed staples like those of Atlantic cauldrons; but the form altogether, as thus developed, resembles them only rather vaguely.⁶ Closer to them, however, stands another Rhodian dinos, which has the rings set in simple staples against the rim, like the Gordion cauldrons (though with four of these handles instead of two);⁷ this feature therefore reaches the middle from the earlier seventh century. And from Rhodes and Crete the form was carried along the westward sea-route, up the west Greek coast and past the island of Ithaka. For a local version of it, with foot and two plastic handles, the rings in simply-moulded staples, was found

¹ See p. 171 above, n. 8.

² Payne, *ibid.* 160, pl. 63, 4, 5, 10; fig. 23, 1-2.

³ Daremberg-Saglio, *Dict. des Ant. gr. et rom.* III, ii. 1000-2.

⁴ *Les Bronzes antiques du Louvre*, II (1915), nos. 2589-98, with bibliography.

⁵ Levi, *op. cit.* 484, fig. 592, form 4; cf. 164, fig. 176; 172, fig. 192, and 192, with 110, fig. 100

(no handles) and 134-5, fig. 122 (reel-shaped staples, no rings).

⁶ *Archaeologia*, lxxx, 26 and pl. x, Rhodian dinos in Berlin, from Vroulia in Rhodes: K. F. Kinch, *Fouilles de Vroulia*, 214, 259, fig. 103.

⁷ *Archaeologia*, lxxx, *ibid.*, with n. 2, from Kinch, *op. cit.*, pl. 15, 1.

by Miss Benton in her excavations there in 1931-2 at Aetos.¹ She also found there parts of a pottery cauldron with the vertical fixed handles of a lebes.² But she found in addition what concerns us more, namely the painted dinos³ here illustrated in pl. XXII *a*. This vessel retains the rounded bottom of the metal prototype, and has handles which must likewise be closely imitated from the bronze. Their plastic rings engage in moulded staples, set on a rim everted in a rounded lip, which are reel-shaped with projecting flanges, and are prolonged laterally each way along the rim, in extensions which end again in projecting flanges. This form of staple appears in the Atlantic cauldrons not of Class A, which has only the ring-formed or simply-moulded staples that we have already noticed, but of Class B, which Leeds declared to have begun rather later than Class A, and which we shall further discuss directly. And the painted ornament of the Aetos vessel, with large flying bird, shows it to be Cretan, or at least directly inspired from Crete, and of a date in the second quarter of the seventh century. This dating exactly fits its plastic staples, which show an advance from the simpler form that had been brought in earlier, but are not yet of the more thoroughly moulded sort that we have now seen prevailing in and after the years about 650. It is also consonant with the body shape, which is not inbent above, as are the later cauldrons (cf. fig. 8, c), but has still the earlier, originally Oriental form, seen e.g. in those from Vetulonia (fig. 8, A-B).

The results of this inquiry, then, may be summed up as follows.

1. Cauldrons of hammered bronze, with rims somewhat profiled and with free-riding ring-handles, are originally not European but Oriental, and apparently were a speciality of the bronze-smiths of Urartu (Armenia). Thence they became known both in Phrygia and in Greece and Etruscan Italy. This came about by trade conducted primarily through North Syria, over which Urartu exercised suzerainty from the early eighth century till the conquest by Assyria in 743-724 B.C. A Black Sea or Anatolian route from Urartu will have sustained some traffic in them (and in their tripods) for rather longer. Accordingly, these Aegean and Mediterranean lands were receiving them, and probably also craftsmen able to propagate their manufacture, in the second half of the eighth century, so that their imitation and adaptation there were ensuing already around 700. Their handle-attachments at first had ring-holders of simple, short-tubular form, which, however, presently began to be varied, e.g. by ribbing.

2. Such cauldrons are best known in their ceremonial versions (fig. 8, A-B) with heads of beasts set round the shoulder, and 'siren' handle-attachments. But 'utility' versions were also made, which were often indeed handleless, but could have free ring-handles too. These dinoi can have been the Mediterranean prototype for the first Atlantic cauldrons of Class A, which in that case will have begun to be made towards or around 700 B.C.

3. Cauldrons of similar form but having reel-shaped ring-holders, flange-ended and with flange-ended lateral extensions, are shown by the painted pottery example

¹ *Ann. Brit. Sch. Athens*, xliii (1948), 69-71, no. 383 (M. Robertson), with pl. 24.

² *Ibid.*, no. 382, with fig. 42 (profile) and pl. 25.

³ *Ibid.* 101, no. 599, with fig. 52 (profile, p. 96) and pl. 45. We are most grateful to Miss Benton for lending us her negative for our illustration.

from Aetos in Ithaka (pl. xxii a) to have been a development of the second quarter of the seventh century B.C., probably Rhodian and Cretan but current also among western Greeks. These can have been the Mediterranean prototype for the first Atlantic cauldrons of Class B, which in that case will have begun to be made in the generation before 650.

4. Around and after 650, however, there ensued the Mediterranean development of cauldrons with body inbent above, and with handles having ring-holders of long-tube form, variously moulded (fig. 8, c). These divergences (on which see further below, p. 195) would seem to exclude the possibility of deriving Atlantic from Mediterranean cauldrons after c. 650, whatever were their class.

F. ATLANTIC CAULDRONS, CLASSES A AND B

If the makers of Atlantic cauldrons were seeking to render the Mediterranean types, themselves renderings of Oriental ones, that we have been considering, knowledge of these must have reached them by one or other of two routes (fig. 9): either to the south coast of France and thence north-west to the Atlantic by land and river, or else through the Straits of Gibraltar and so round Iberia. That Greeks were trading on the south French coast before the end of the eighth century, even if still sparsely, and throughout the seventh in increasing strength, has become generally recognized since Jacobsthal and Neuffer, in their *Gallia Graeca*, first listed the relevant finds there of Greek pottery and fibulae.¹ There seems no reason why occasional cauldrons, successively of the types of towards 700 and towards 650, should not have been seen there in the hands of Greeks and sometimes then obtained from them in the course of barter, by traders in metal (or chiefly in metal) exported from the far north-west, whether actual Irish, or middlemen from Brittany or the Loire. The gift of a cauldron was in early Greece customary as a mark of high esteem;² and one offered on the south French shore to metal-dealing barbarians—an 'extra' for their longer-term goodwill—would be sure to make a particular impression, not only by the novelty of its workmanship, but also by the prestige of its function in ceremonial, which a shrewd and pious Greek trader could please barbarians and gods alike by demonstrating, in the festivity which would lubricate the deal. At all events, in the later Celtic literary mythology of Ireland and Britain, cauldrons have strong associations with the supernatural,³ the germs of which could well have been

¹ P. Jacobsthal and E. Neuffer in *Préhistoire*, ii, 1 (1933), 1-64; list of these, 38 ff., repeated by A. García y Bellido in *Archivo Español de Arqueología*, xli (1940), 109-10, and *Hispania Graeca*, i (1948), 64-66 and with concordance by Hawkes in *Ampurias*, xiv (1952), 93-94, with map (91) and the addition of the seventh-century pottery from H. Rolland, *Fouilles de St.-Blaise* (Suppl. *Gallia*, iii, 1951), 7 ff., 60-63, 220-2. The fibulae are two of Blinkenberg's 'Helladic' series 7, which should be eighth-century, among the otherwise wholly native material from the Grotte de Rousson (Gard):

Jacobsthal and Neuffer, *op. cit.* 40-42, fig. 42 (Mus. Montpellier).

² e.g. in Homer, *Odyssey*, xiii, 24, and xv, 113. The poem seems to have been composed in just this period, when the new western voyages would bring a fresh attraction to its theme.

³ In Ireland the attribute of abundance pertaining to the Dagda (figure recognizable through the mythology as old god of Other-World) was an inexhaustible cauldron of good cheer; by such cauldrons supernatural banquet-halls were supplied; the Dagda himself (in another myth) had to gorge from

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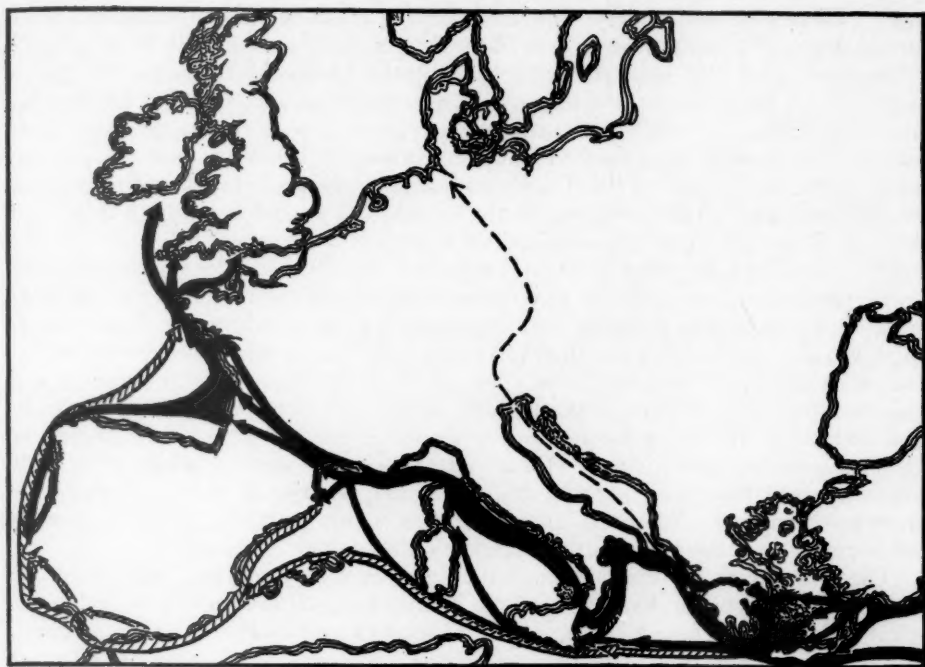


FIG. 9. Europe, showing routes from the Mediterranean to the west and north.

introduced with the first foreign cauldrons that came in.¹ And the route thus envisaged for them is of course the familiar 'tin route', later made famous with British

an enormous cauldron; another, in Scotland, was filled daily with milk by the three magic cows of Echde; and in another, of three-man size, was contained the 'hero's portion' of wine and victuals awarded to Cúchullain. The cauldron's bounties could include also artistic inspiration, and even life itself. In the Welsh Mabinogi of Branwen the monstrous couple who emerge from a 'Lake of the Cauldron' in Ireland, the man with a cauldron on his back—thereafter brought to Anglesey: see Miss L. F. Chitty cited by Fox, *Antiq. Journ.* xix, 372, on this and the Llyn Fawr cauldrons—were primitively a goddess and her consort, and the cauldron could give resurrection to the dead, if put in it. These examples have been drawn from T. F. O'Rahilly's *Early Irish History and Mythology* (1946), and M. L. Sjoestedt's *Gods and Heroes of the Celts* (trans. Dillon, 1949). The high value, magic virtues, and vast size attributed to cauldrons

in Irish texts are illustrated also by R. A. S. Macalister's quotations in *The Archaeology of Ireland*, 2nd ed. (1949), 217-19.

¹ The medieval *Lebor Gabála Éirenn*, the 'Book of Invasions of Ireland', credits the first Irish cauldron to Brea, of the race of Partholón, which however is quite fictitious; later it brings the Dagda and his cauldron in among the *Tuatha Dé Danann*, again fictitiously, for these 'people' had all been gods, and their 'invasion' seems invented for this book. It is indeed curious that it should bring them from the 'islands of Northern Greece', where they had learnt all arts; and Leeds wondered if the story might echo the real contacts with Greeks and Greek cauldrons which he suggested archaeologically (*Archaeologia*, lxxx, 27). But the weapons that it also brings with them are again attributes of gods, the sword of Nuada and the spear of Lug, which apparently symbolize lightning, as does the Dagda's

tin by Diodorus,¹ but understandable as serving these islands' metallic and other merchandise in general, from a date likely to be as early as the Early Bronze Age.² Then, just as we shall soon see Greek trade up the Rhône, northward to Burgundy and beyond, marked by the somewhat later gryphon cauldron from La Colombe, and subsequently by the Vix treasure, with its great bronze crater, and other finds of Greek things as far inland as the Heuneburg in Swabia (below, pp. 196-7), so in this prior period we can accept the Atlantic cauldrons as evidence for the north-western route, from the Gulf of Lions over to the Ocean, and so past Brittany to Ireland or Britain. There are signs that the Greeks first learnt to visit its south French terminal from natives met by them in Sicily,³ who had already been going sometimes to traffic there themselves. Thus the Mediterranean inspiration of Atlantic cauldrons need not shock us with surprise, as though sprung on us merely by typologic conjuring. For Sicilian bronzes are already known beside its route in western France—the elbow-fibulae of the Late Bronze hoards of Notre-Dame-d'Or and Vénat,⁴ and the shaft-hole axes of Périgueux museum, of the Late Bronze hoard of the Jardin des Plantes at Nantes, of Rennes and of Ville d'Avray—and from the foreshore at Southbourne near Hengistbury Head.⁵ And to south France, by which these most probably came from Sicily, the Greeks came next, likewise from Sicily, or anyhow from or through the South Italian and Sicilian region generally, which they were colonizing progressively from the middle eighth century onwards.

The other route, however, through the Straits and round Iberia, was fancied by Leeds.⁶ It is of course the route that has its major attestation for this period in the great bronze cargo found in the Ría de Huelva on the south-west Spanish coast, with its inclusion of Irish or British spearheads, and carp's-tongue swords and other

cauldron life and plenty. See the works cited in the preceding note: all this is myth, not history. The conclusion then will be no rationalizing invasion-theory, but simply that adoption of such material things as divine symbols must indicate a prestige for them; and that this, for the cauldron in Ireland, is likeliest to have accompanied it direct from the Mediterranean, where such vessels were revered already.

¹ Hencken, *Archaeology of Cornwall and Scilly* (1932), has what remains the classic chapter on this tin trade; see also R. G. Collingwood in Tenney Frank, *Economic Survey of Rome*, iii (1937), 45-47.

² For this as the route of our 'faience bead' connexion with the Mycenaean Greek world, see the late Dr. J. F. S. Stone in *Proc. Prehist. Soc.* xxi (1956), 56-61; Hawkes in *Ampurias*, xiv (1952), 81-118, considers these same matters (esp. 96-99), though more from the Mediterranean and Spanish angle.

³ For the importance of native bronze industry in Sicily to the colonizing Greeks there, see the remarks of T. J. Dunbabin in *The Western Greeks* (1948), 190-1. The Sicilian and then Greek interest in the north-west was surely above all for tin,

though there would doubtless be other things to buy as well. Gold is always possible; and if copper were offered too, Greeks trading here so early would not disdain it, seeing Sardinian copper cornered by the Phoenicians, and Etruscan purchaseable only against their (and more of other Greeks') competition. The Etruscans indeed had all metals; but remoter barbarians would be cheaper sellers. The ideal solution was of course awaiting the Greeks in southern Spain, but they did not find it till 638: Herodotus, iv, 152.

⁴ Déchelette, *Manuel*, ii, app. i, nos. 735 and 94; Hencken in *Zephyrus*, vii, 2 (1956), 126-36 (figs.).

⁵ Hawkes in *Ampurias*, xiv, 100-1, with maps and refs.; Southbourne axe, *Antiquity* (1938), 225-8. The same route in reverse must have brought to Sicily the West-European maple-leaf or Class II bronze razor (*ibid.* 99) found there in grave 78 of the cemetery at Cassibile. This is unique in Sicily, and must be an exported member of the Western class, not a Sicilian prototype for it: see Hencken in *Proc. Prehist. Soc.* xxi (1955), 160-2.

⁶ *Archaeologia*, lxxx, 27-28 (though '1000 B.C.' seems a slip for '600'; for the buckets mentioned here, see p. 185, n. 6

types Hispanicized from West or North-West Europe, together with fibulae of specifically East Mediterranean affinity.¹ That the date of the Huelva find lies within the early or middle seventh century—not later, nor (as formerly believed) in the eighth century or earlier—will be found confirmed in the recent studies devoted by Cowen and Hencken respectively to the carp's-tongue sword in general.² But the fibulae, which are collaterals of the Sicilian elbow-fibulae just mentioned, have a decorative moulding of the bow which derives them unquestionably from the type 4 fibulae of Cyprus.³ And intermediately several of the weapon and implement types of the Huelva and other finds in Spain and Portugal reappear, evidently by exportation, in the hoard of Monte Sa Idda in south Sardinia.⁴ This must suggest connexion with the trading-system not of the Greeks, but of the Phoenicians. Cyprus was at that time closely bound to them; and it was they, and not the Greeks, who had outposts of commerce in Sardinia.⁵ On the other hand, there is nothing to show that the Phoenicians had got to Spain;⁶ consequently, if prototypes for Atlantic cauldrons were brought this way, Phoenicians must be supposed to have sold them (as also then fibulae from Cyprus) to traders from Spain at a Sardinian port. At least two bronze vessel-handles of this time have been discovered in Sardinia, one in the Monte Sa Idda hoard itself (with pieces of a sheet-bronze vessel), the other in the contemporary hoard from Tadasune, which, whether local work or not, seem in type to be Oriental; however, they are not cauldron ring-handles, but basin-handles of a rigid arc-shaped type with disc-ended rivet-plate.⁷ Of course, Sardinia may one day produce cauldron handles too; and the Huelva find did include sheet-bronze fragments which may represent a cauldron. But that can already, in the seventh century, be Irish and exported to Huelva with the spearheads we have mentioned.

¹ It figures in Ebert's *Reallexikon* (s.v. Huelva) and in all general works on pre- and protohistoric Spain from Bosch Gimpera's *Etnología de la Península Ibérica* (1932) onwards; fullest descriptive account, M. Almagro in *Ampurias*, ii (1940), 85–143. See also E. MacWhite, *Estudios sobre las Relaciones Atlánticas de la Península Hispánica en la Edad del Bronce* (Dis. Matritenses, II); Hawkes in *Ampurias*, xiv, 100 ff.

² Both, briefly, in *Actes du IV. Congrès Internat. des Sc. P. & P., Madrid 1954* (1956), 639 and 679; Dr. Hencken's expanded in *Zephyrus*, vii, 2 (1956), 125–78. We are most grateful to each for communication of text before publication.

³ See Hencken, 132–7, 141–2 (figs.); the prototype of all these seems Syrian, as in the 5th stratum at Megiddo).

⁴ A. Taramelli in *Monumenti Antichi*, xxviii (1921), 9–98; compared with Huelva by Bosch Gimpera (1932) and all subsequently (see above, n. 1). MacWhite's map (*op. cit.* 86, fig. 25), with distribution of the swords, well shows the route, Atlantic–Straits–Sardinia, with link to Etruscan Italy but not to any Greek-held coasts. And see

Pallottino in *Ampurias*, xiv (1952), 137–55; Hencken, *op. cit.* 137–8, 144.

⁵ On native and Phoenician/Carthaginian Sardinia, see G. Lilliu in *Not. Scavi* (1944), 323–70, and his *Il Nuraghe de Barumini* (1955).

⁶ Despite earlier belief, and despite W. F. Albright in *Amer. Journ. of Archaeologia*, liv (1950), 174 ff., this is the necessary conclusion today: anything supposed brought to south Spain or Portugal by Phoenicians before Greeks first arrived there in 638 is either not so early, or else (like the few Saite-Egyptian scarabs) could have been brought by Greeks as well, and any exception to this—unless some great surprise awaits us—will be a rarity that could have been traded through Sardinia, where the eighth-century Semitic inscriptions from Nora emphasize the contrast (*CIS.* 144–5). In this and on the strong case against seeing Spanish Tartessos in the Biblical Tarshish, see H. L. Lorimer, *Homer and the Monuments* (1950), 66–67; for the modern Spanish literature, see above, n. 1, and refs. in *Ampurias*, xiv, 88, nn. 25–26.

⁷ Taramelli, *op. cit.* 62–63, figs. 88–89; Bosch Gimpera, *op. cit.* 233–6, fig. 196.

Moreover, two pieces of helmets have lately been recognized among the Huelva fragments,¹ and the type that they represent belongs to the westward expansion of Late Urnfield culture in France.² Thus, the European character of the Huelva find in general, apart from its Cypriote-like fibulae, is made clearer than ever in its war-gear. Dr. Hencken has connected the fibulae with his suggestion of 1950³ that the tombstone carvings of notched round shields, found in the WSW. of Spain and adjacent Portugal,⁴ attest the passage of the Gibraltar Straits by traders coming from the Greeks, before the historical Greek discovery of this route in 638, because of analogous shields and shield-representations from Delphi, Samos, Crete, and Cyprus of the eighth and seventh centuries. But since the rest of the war-gear in those carvings seems West European, any adoption of shield-notching in the Peninsula as early as this from Greeks would be more probably effected through West European intermediaries. And that would have to mean transmission by our French route, and then by the Biscayan coast into Spain along with the carp's-tongue sword derived from the French which the carvings likewise represent.⁵ Otherwise, there only remains the origin in Urnfield Central Europe which Sprockhoff has propounded⁶ not only for the notched shields found there and in the North (and two of wood in Ireland)—the notches of all these are U-shaped, as Hencken pointed out—but also for the Greek, the Spanish, and Portuguese and the two remaining Irish examples,⁷ all of which have V-shaped notches. The problem is hardly yet resolved, but for neither of these theories, anyhow, are the Gibraltar Straits required.

The Iberian route for our cauldrons through the Straits then seems likewise not required; at all events, it is not proven. The French route, strictly, is not proven either. Yet the idea of it seems the neater and more economical of the two. It invokes not Phoenicians, but Greeks; it invokes Greeks only when and where there is other evidence for their doings. And Greeks alone—on our existing evidence—had prototypes not only for the A class of Atlantic cauldron, but also for the B class, as Miss Benton's dinos from Ithaka has shown (pl. xxii a). With neither route, anyhow, can the transmission be thought of as a slow one, requiring retarded dates for the consequential Atlantic vessels. The same summer trading-season might have seen a cauldron stowed in a Greek hold at a Sicilian or South Italian, or even an Aegean port, exchanged directly or through middlemen in France, and brought straight to Ireland by homing curragh from the Loire. An Iberian route need have been little slower; and if, alternatively, what reached the Atlantic coasts was no more than impressions in the minds of men, who on trading expeditions to the south

¹ By Mr. J. D. Cowen (April 1954): see Hencken in *Ampurias*, xvii-xviii (1955-6), 224-8.

² Cf. pp. 153-9; the helmets are distributed as far towards the English Channel as Bernières-d'Ailly, near Falaise.

³ *Amer. Journ. of Arch.* liv (1950), 295-309; *Zephyrus*, vii (1956), 132.

⁴ Most recent treatment: Pericot in *Zephyrus* ii, 2 (1951), 83-88; J. Ramón y Fernández Uxea in *Arch. Esp. de Arg.* xxiv (1950), 293 ff.; and xxix (1955), 266-73.

⁵ Suggested by C. F. C. H. in *Ampurias*, xiv, 106 (with 102-4 after Savory in *Proc. Prehist. Soc.* xv, 128 ff.).

⁶ See p. 148 above, with n. 2, and Sprockhoff in *Jahrb. d. Röm.-Germ. Zentralmus. Mainz*, i (1953-4), with classified distribution map.

⁷ That is, the Clonbrin leather shield and the leather shield-maker's wooden form from Churchfield; but both so resemble the best carved Spanish representations that these two groups must in any case be directly linked.

had merely seen Mediterranean cauldrons, there is equally no room for serious 'time-lag'. Even Odysseus, after all, got home in less time than the least that Bronze Age archaeology can measure. The slower the transmission is supposed to be, in fact, the harder it will be to credit. And if it is fancied to be so slow that the prototypes have vanished before their copies have appeared, it will no longer be credible at all.

When the Irish and British smiths began to produce their own first home-made cauldrons, that is, Atlantic cauldrons of Class A, they took the spheroid body-form, the rim-form, and the handle-form from their Mediterranean prototype, as we have tried to show. However, they invariably rendered the body not in one piece—which was too difficult for them—but in riveted sheets. And this, together with the rolling of the rim-edge round a wire or hoop (p. 164), is characteristic not of that prototype, but of Kurd-type Central European buckets. In most cases also, they corrugated their cauldron's necks in a manner perhaps borrowed from those buckets. We may add, moreover, that in some cases they altered the spherical body-form to a high-shouldered and somewhat conoid shape, which seems certainly borrowed from the sort of Kurd bucket that we have from Nannau.¹ Conversely, their imitation of the Mediterranean handles, with rings riding in cast staples, cast on to the rims of the cauldrons, was a feature which they borrowed from those Mediterranean vessels to give to the buckets: sometimes to imported Kurd buckets in replacement of the ribbon handles (Derrymacash, Ireland, p. 144), and always to the Irish-British buckets which they produced themselves.

Consequently their first Atlantic cauldrons, and their first buckets likewise with these cast staples, must be contemporary, and directly subsequent to the importation of the prototypes of each into our islands. We were able above (p. 143) to date the importation of Kurd buckets after c. 750 and toward 700 B.C. And we insisted that the Irish-British buckets must follow them, and be in mature production already quite early in the seventh century, in contradiction to the opinion that has favoured their dating later (pp. 151-9). The application of cast secondary Irish staples to some Kurd buckets (p. 144) must be contemporary. We now have been able to date the Mediterranean cauldrons with their Oriental inspiration, again after c. 750 and towards 700 B.C.—and this on grounds that are essentially independent of the dating of the Kurd-type buckets, and are based on Near-Eastern and Greek historical chronology. These two lines of argument, accordingly, converge on a date c. 700 for the simultaneous production of Irish-British buckets and of Class A Atlantic cauldrons. Each has been adapted here from a prototype introduced during the preceding half-century, from c. 750; and each has borrowed some feature, or features, from the prototype of the others. We shall find this chronology confirmed by what will follow; meanwhile, the distribution of all Atlantic cauldrons is shown mapped in fig. 10.

¹ This was not remarked by Leeds (*op. cit.* 4), since he mistakenly thought that the relevant continental buckets were all *sharp*-shouldered like that from the Tomba del Duce at Vetulonia (his pl. ix; see p. 139 above), which is really too late to be

directly relevant. Cf. then our fig. 1 and pl. 1 with his pl. II, 2 (Belfast Mus. 1911.142, his no. 14) and pl. III, 4, from Edleston (Hattenknowe, S. Scotland). The Portglenone and Ramelton cauldrons are similar: see below (p. 183, with n. 5).

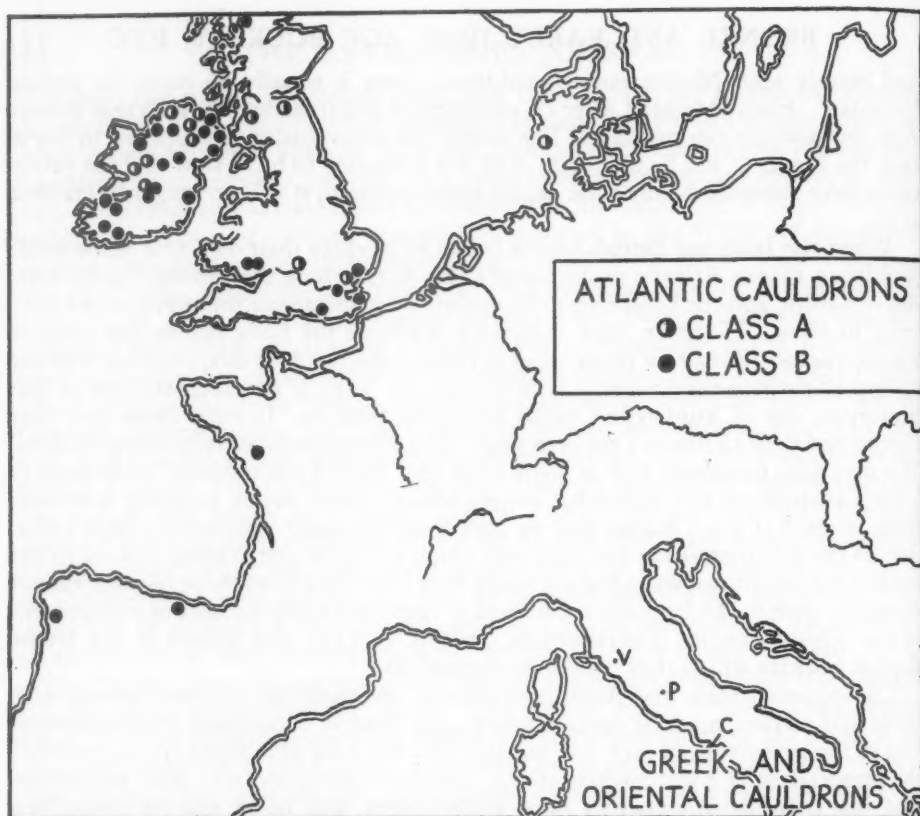


FIG. 10. Distribution map of Atlantic bronze cauldrons. (Sites with related cauldrons in Italy: V—Vetulonia, P—Palestrina, C—Cumae.)

A1 (8): ENGLAND (2): Colchester, p. 160; Shipton, p. 163 (L1). SCOTLAND (1): Edleston, p. 183 (L3). IRELAND (5): Derreen (L12); Tul-na-Cros (L8); *Whigsborough ('Dowris') (L11); Cloonascurragh Bog (L10); no loc., W14 (not mapped): all p. 183.

A2 (4): SCOTLAND (2): DU4, p. 183 (L4); *Dulduff, p. 183 (L2). IRELAND (2): no locality, p. 183 (L13, 15).

A3 (3): IRELAND (3): Portglenone, p. 183 (L7, and probably L6); Ramelton, p. 183 (L9).

B1 (22): ENGLAND (1): *Minnis Bay, p. 185. WALES (2): *Llyn Fawr, p. 187. SCOTLAND (1): West of Scotland, p. 186 (L16). IRELAND (18): W12 (L18); W13, p. 164 (L19); Dirneveagh Bog (L20); Derry Bog, (L21); Ballyshannon, p. 184 (L22); Donaghadee, p. 187 (L23); Raffery Bog, p. 187 (L24); Co. Down? (L25); Milkernagh Bog (L26); Lisdromturk Bog (L27); North Ireland (L28); Castlederg (L29); *Whigsborough ('Dowris'), pp. 137, 183 (L30 and 31); Ballinvariscal Bog, p. 184; Cloonta, p. 186; Kealanine, p. 186; Ballynorig, p. 186.

B2 (8): ENGLAND (3): Thames at Battersea (L32); Ipswich (L33); *Sompting. SCOTLAND (1): Poolewe (L34). IRELAND (4): Ballyscullion (L35); Ireland (L36 and 37); Dalkey. All p. 188. Fragment: B2? Ditchling, Sussex (Lewes Mus.).

(L—number in Leeds's list: *Archaeologia*, lxxx (1930), 31–34; *—in hoard, or with associated find.)

DENMARK: Abildholt, p. 183 (A3). FRANCE: Prairie de Mauves, Nantes, p. 185 (B1). SPAIN: Cabárceno, Santander, p. 164 (B1); *Hío, Pontevedra, p. 185 (B).

Leeds distinguished as the most primitive of the Class A cauldrons, and therefore as a sub-class A1, those in which the handle-rings ride free between the staples and the rim itself. This is the case in our Colchester cauldron (p. 163), and in Leeds's from Shipton-on-Cherwell, in that from Edleston (Hattenknowe) in southern Scotland, and in five Irish finds: the cauldron that contained the Whigsborough ('Dowris') hoard,¹ those from Tul-na-Cros (Co. Derry) and Derreen (Co. Roscommon), that from Cloonascragh Bog (Co. Galway) before its subsequent repair, and that numbered W14 in the National Museum, Dublin.² The handle-rings of these are round in section, as in the Mediterranean prototype, except those of the Colchester cauldron (triangular), and of the Edleston and Derreen cauldrons, which are quadrangular in section as are the rings of all known buckets.³ All the buckets except one have staples similar to the A1 cauldrons' form, with the ring riding between them and the rim. The typological 'advance' in Leeds's sub-class A2, with transverse bars flanking the ring-holder at each end below the ring (two in Dublin, two in Edinburgh),⁴ is unrepresented on extant buckets; one bucket staple, however, that in the Meldreth hoard (p. 144), is of the 'still more advanced' variety A3, which has a plate below the ring entirely covering the rim, as in the conoid-bodied cauldrons from Portglenone (Co. Derry) and Ramelton (Co. Donegal) in the north of Ireland,⁵ and the exported specimen found not long since on the north-west coast of Jutland, at Abildholt (Borbjerg, close to Holstebro bucket, pl. xxiii a, b).⁶ Since, therefore, we have found reason for believing all Irish-British buckets to belong within the seventh century, the same may be concluded for all Class A cauldrons. Indeed, it seems likely that both these and the buckets had ceased to be made well before 600. For already before 650, without doubt, a beginning had been made with cauldrons of Class B1, which begin the B series, with rim everted and neck a mere constriction.

At the head of the B1 cauldrons stands that from Ireland numbered W13 in the National Museum, Dublin (pl. xxii a).⁷ It is somewhat conoid in body, and has its everted rim short and slanting very like that of an Irish-British bucket (cf. fig. 5, p. 150). But its handles, with rings of circular section, have cast staples with tubular ring-holders placed on the top of its lip, and not inside this as in all those buckets and all other known B cauldrons; moreover, they have lateral extensions ending in moulded flanges. In these and in the placing of the staples and in their rings, W13 resembles the Greek dinos cauldron from Aetos (pl. xxii a), dated c. 675-650 (pp. 174-6). The flange-ended extensions appear likewise on the normal B1 cauldrons, where they form the horizontal bar clipping the lip of the rim, inside which the ring-holder forms a bridge between this and the inner neck-angle, usually braced either with a plate fully covering the rim as in A3 cauldrons, or with transverse bars only, as in A2. Moreover, similar lateral flanges now terminate the

¹ But not the loose staple, Leeds's no. 30 (p. 137), which was afterwards mounted falsely on the 'Dowris' bucket; that is of Class B1, for which see below.

² Leeds, *op. cit.* 14, (list) 31-32.

³ Leeds, 7-8, 16.

⁴ Leeds, *ibid.*: his nos. 2 (Dulduff) and 4 (DU 4), in Nat. Mus. Antiq. Edinburgh, and 13 and 15 in

Nat. Mus. Dublin.

⁵ Leeds, 15-16, 29.

⁶ Photo by courtesy of Prof. C. J. Becker and Nat. Mus. Copenhagen, from his publication of the find in *Acta Archaeologica*, xx (1949), 265-70.

⁷ i.e. it is numbered 13 in Wilde's *Catalogue* (531, fig. 408); Leeds, *op. cit.* 8, 12, 15, 32, no. 19; pls. iv, 4, and vi, 2.

mouldings on the ring-holders; and these remain a constant feature of all the B class. But they appear also in A3 cauldrons,¹ B1 cauldrons therefore appear side by side with A2 and A3. And at the same time, the peculiar terminal flanging of their staples links them so distinctively with the Aetos reel-shaped staples and their like among the Greeks, that they surely represent a second instalment of the Mediterranean influence that had engendered the A1 cauldrons, following a short generation later, viz. in the seventh century's second quarter, towards 650.

The B1 cauldrons modify the Greek everted rim-form, however, by assimilating it to that of the Irish-British buckets, as in the Irish W13 specimen, and more normally by lengthening and everting it farther, into the broad and out-slanting form that soon required attaching to the shoulder by means of stays. Evidently, then, the Greek influence was short-lived, and was only one of several influences that went to make the fully-developed B1 form. It would seem, accordingly, that the B1 cauldrons began to be made in the decades before 650, alongside of the more 'advanced' A2 and A3 cauldrons and of the buckets, and that they continued after, through the second half of the seventh century, becoming more and more distinctive in their details, especially the stays. Leeds's description of these need not here be repeated (his pp. 9-12); but we may with advantage mention those cauldrons or fragments of the B1 class that have come to light since he wrote.

Perhaps the most interesting is the cauldron from south-west Ireland, found in Ballinvariscal Bog near Castleisland (Co. Kerry),² which was pollen-dated by Mr. G. F. Mitchell³ to the Zone VIIb/VIII transition. This palaeobotanical level, though it appears not always defined in bogs quite clearly, is that generally regarded as the 'border-horizon' marking the onset of the wet Sub-Atlantic phase of climate.⁴ Whenever exactly the cauldron was buried in the bog, its manufacture is not likely to have been later than c. 650. It is shown here in pl. xxiii c-e.⁵ Its staples are simple, and its rivets mushroom-headed. Its chief interest lies in the six stays which secure the everted rim, three on each side evenly spaced between the handles. These stays, unlike all those described by Leeds, are broad and slightly fluted struts of sheet-bronze, clasp the rim and riveted to the shoulder at their lower ends. The nearest approach to them seems the pair of struts flanking each handle of the Ballyshannon cauldron (Co. Donegal);⁶ and the inspiration has surely been provided by the sheet-bronze handles or ring-holders of buckets of the Kurd type (cf. pl. xx and figs. 1 and 2). Imported examples of this, then, such as the Whigsborough or 'Dowris' one, will have still been current or remembered in Ireland when the problem of steadying the rim of a laden B1 cauldron was having to be met

¹ Leeds, *op. cit.* 5.

² *Proc. Prehist. Soc.* xii (1946), 160.

³ In *Proc. R. Irish Acad.* liii (1951), B, 177 (diagram, pl. vii, no. 92). Mitchell here supersedes the diagram no. xix of his paper *ibid.* 1 (1945), 1-19, placing the cauldron in the lower part of what he was then calling Zone VII, now Zone VIII. The 'horizon' will represent the surface of the bog, down from which the cauldron will have purposely been buried; but see below.

⁴ Cf. the case of the Llyn Fawr lake-find, p. 187 below.

⁵ From photo kindly given by Prof. M. J. O'Kelly, F.S.A., U.C.C. Museum, Cork, to whom C. F. C. H. is most indebted also for photos of the Kealanine and Ballynorig cauldrons noticed below (p. 186), and for assisting his examination of all of them in Sept. 1951.

⁶ Leeds, *op. cit.* 10, pl. vi, 3.

by devising stays. The Whigsborough hoard, in fact, by containing both a Kurd bucket and a B1 cauldron-staple,¹ authenticates the overlap between the life-times of these two types; its deposit is not probably later than 650, nor, accordingly, will be the Ballinvarisical cauldron. The 'border-horizon' marking the transition to the palaeobotanical Zone VIII, it is true, ought to be dated later, namely about 400. Either, then, the cauldron was not buried purposely, but left for the bog to grow slowly over it to the transition level, or else what Mitchell had here was a phase of transition not as late as the genuine onset of the Zone VIII climate.²

In south-east England the B1 cauldron-staple fragment in the bronze hoard from the submerged site at Minnis Bay, Birchington (Kent),³ was present as scrap in an assemblage likely to have been deposited at a late date within the 'carp's-tongue' phase, presumably towards 600. In western France a B1 staple similarly reduced to scrap was noticed by Mr. G. C. Dunning in the 'carp's-tongue' hoard of the same or not greatly earlier date found in the Prairie de Mauves at Nantes and preserved in the Musée Dobrée there.⁴ This introduces us to the coastwise distribution that has prompted our name 'Atlantic' for the cauldrons as a whole. A handle-ring from the neighbourhood of Crozon (Finistère)⁵ may be from another such cauldron but is of quadrangular section, which might rather suggest a bucket.⁶ On the coast of Spain, lastly, cauldron fragments have been published in the Hísio hoard (Pontevedra),⁷ also of this period's 'carp's-tongue' complex,⁸ and a fine whole cauldron from Cabárceno (Santander), which has been variously taken as Irish work or Spanish.⁹ Both these are among the quite numerous B cauldrons fastened with projecting conical rivets—a feature which calls for brief further notice.

¹ The staple is the loose one noticed above, p. 137 and p. 183, n. 1. Its rescue from its improper perch on the rim of the bucket has thus helped not only to reveal the bucket as a Kurd, but also to peg its own chronology.

² On the correlation-problems here involved, see at present Hencken in *Journ. R. Soc. Antig. Ireland*, lxxxi, 1 (1951), 1 ff., esp. 9-10. It is of course known that further work on them by Mitchell is in progress. For Llyn Fawr see p. 187 below.

³ F. H. Worsfold in *Proc. Prehist. Soc.* ix (1943), 33-35, pl. xii, no. 37.

⁴ Drawing kindly communicated by him, for reproduction in *Ampurias*, xiv (1952), 110, fig. 8, 2. For the hoard, see Déchelette, *Manuel*, ii, app. 1, no. 452; Savory, *Proc. Prehist. Soc.* xiv (1948), 175, and map, 161.

⁵ Quimper, Musée des Beaux-Arts: kindly communicated by Prof. Piggott.

⁶ Leeds, *op. cit.* 16. If so, this would represent the only Irish-British bucket claimable from the Continent. For that cited on Leeds's p. 28 from Le Rocher, Plougoumelen (Morbihan) is not one, but a situla, with low rim and arc handle, of the Hallstatt Iron Age, and here not earlier than the sixth century, if as early: Déchelette, *Manuel*, ii, 2,

fig. 292. The situla from Lentini in Sicily, with which Leeds suggested connecting it (*ibid.*), no doubt comes from North Italy (though Orsi, quoted by Leeds for this, said just the opposite: *Bull. Paletn. Ital.* xxxviii (1912), 30), but need hardly have been en route to the Breton coast. And in fact, the Crozon handle is quite probably from a cauldron, since that from Cabárceno (below, n. 9) has handle-rings of quadrangular section also.

⁷ Obermaier in *Bol. Com. Mon. Orense* (1923), 28; Almagro in *Ampurias*, ii (1940), 104-6, fig. 22; Savory in *Proc. Prehist. Soc.* xv (1949), 135, 141, 155; MacWhite, *Estudios sobre las Relaciones Atlánticas* . . . (1951: p. 179 here above, n. 1), 108, lám. xxxv; Hawkes in *Ampurias*, xiv (1952), 112.

⁸ For the uncertain fragments in the Ría de Huelva find, see p. 179.

⁹ A. García y Bellido in *Archivo Español de Arq.* xiv (1941), 560-3; J. Martínez Santa-Olalla in *Actas y Memorias de la Soc. Esp. de Antr., Etn. y Prehist.* xvii (1942), 163 ('imported'); MacWhite, *op. cit.* 105-6 ('Irish'), fig. 32 (correct section of rim and staple); Hawkes, *op. cit.* 110-12 ('Spanish'), fig. 8, 1 (incorrect), fig. 9, lám. 11, 2-3.

Conical-headed rivets appear on more than a dozen B cauldrons in addition to those just mentioned, mostly of class B1, and the majority found in Ireland, where they appear already on the primitive-looking cauldron W13 (pl. xxiii c). In addition to those listed by Leeds,¹ they are a feature also of the B1 cauldrons found in recent years there respectively in Co. Mayo at Cloonta, in Co. Cork at Kealanine near Bantry, and in Co. Kerry at Ballynorig West, near Causeway (pl. xxiii b).² The last-named is interesting also for its rim ornamented with rows of small bosses, as on the West of Scotland and some other of the B1 cauldrons described by Leeds,³ but here with a row of embossed triangles beside them; such bosses recall those of the shields and the Cape Castle Bog bucket (p. 142), and can thus begin early in our series, however late in it they may last. But such prominent external rivet-heads are unknown on buckets, and equally on all foreign cauldrons, so that they have no common background with our cauldrons' handles. These rivets in Ireland are commonly derived from the North German-South Scandinavian region, where they had been introduced as a feature on bronze vessels made primarily in Central Europe. MacWhite, who has considered them in connexion with the similar-looking cast spikes on the Irish bronze trumpets of this period,⁴ has supposed them brought to Central Europe from Italy, with a chronology which takes them to Ireland not before 600. Really, however, Central Europe is their home; and their development, from the smaller ones of Late Urnfield times noticed above (p. 140) on some bronze cups, and on the Kurd bucket from Whigsborough (p. 136), into decorative protrusions round the girth-band of the bronze vases known as 'amphorae', was under way before the end of Late Urnfield times, and only then continued into Hallstatt C.⁵ Such vessels first appear in the North, accordingly, in the Montelius period V, and in the eighth century, before Hallstattian influence reached it in the seventh: they are the Mariesminde or Lavindsgaard amphora and its like.⁶ And in Italy, though Merhart has doubted it,⁷ their first appearance, in Pallottino's 'Archaic II' period,⁸ is rightly dated by Hencken from c. 750.⁹ The Hallstattian vogue of these rivets, extending also to bronze jugs—that is, late Hallstatt, with curved and sometimes ox-head handles—is the sequel.

Thus, granting that the fashion for conical rivets was really, as seems most likely, brought to Ireland from the South Scandinavian region, their introduction¹⁰ will attest the same influence as we have already seen bringing in from that quarter con-

¹ *Op. cit.* 32–34.

² Photo as before kindly given by Prof. O'Kelly. For the finds see *Proc. Prehist. Soc.* xii (1946), 160.

³ *Op. cit.* 11, with pl. v.

⁴ In *Journ. R. Soc. Antiq. Ireland*, lxxv, 2 (1945), 94–98; hence his *Estudios* (p. 185, n. 7, above), 106–8, 128.

⁵ Merhart, again in *Festschrift d. Röm.-Germ. Zentralmus. Mainz*, 1952, ii, as above: 22 ff., 28–29, Taf. 14–15 (jugs: see below); 55 ff., 58, Taf. 24–25 ('amphorae').

⁶ *Ibid.*, Taf. 24, 1–3.

⁷ *Ibid.* 58, doubting *Stachelgürtel* (viz. girth-

band with conical rivets) in Italy before Hallstatt times; but see n. 9.

⁸ *Mon. Antichi*, xxxvi (1937), 165 (for Tarquinia). Cf. also the lateral spikes on the comb helmets from such Italian sites, which should originate in similar spike-headed rivets: Merhart in *XXX. Bericht d. Röm.-Germ. Komm. 1940* (1941).

⁹ In *Journ. R. Soc. Antiq. Ireland*, lxxxi (1951), 5; and see his full case in *Zephyrus*, vii, 2 (1956) 138–55.

¹⁰ And their imitation in the spikes of the Irish trumpets of MacWhite's class B: see n. 4. above, and Hencken, *op. cit.* 5–6.

centric ornament (p. 157), and amber,¹ in the period beginning not at 600, but already before 700. Dr. MacWhite's chronology, in fact, requires the same 'reflation' as Mr. Proudfoot's (p. 156)—though of course, if the rivets were known in Ireland from its beginning, they were at all events not applied to cauldrons before the inception of the B class, shortly before 650. On the other hand, MacWhite's comment on the Irish smiths' facility in transferring features between types introduced to them from different quarters is most pertinent, and agrees with what we have seen already here (p. 165). Subsequently, as well as the rivets' continued popularity, the B1 cauldrons can show further cases of embossed decoration, and of growing elaboration in the fluting or grooving of handle-rings, and the ornamental treatment of stays, as on those from Raffery Bog and near Donaghadee (Co. Down).² That B1 cauldrons were being made as late as 600, or shortly after, is therefore likely. But such will be the latest of their class, which will then have lasted about 100 years, from the second quarter of the seventh century.

The low chronology thus rejected, which would date them 600–400 B.C.,³ may yet be thought supported by the two B1 cauldrons in the Llyn Fawr lake-find in South Wales—the second brought to light only in 1936, and having conical rivets just like the first.⁴ For the Llyn Fawr find was pollen-dated by Dr. Hyde to a time rather later than that of the 'border-horizon' supposed to represent the onset of the wet Sub-Atlantic climate-phase;⁵ and archaeologically, Fox dated it about 500, in deference to Leeds.⁶ But Dr. Godwin has since pointed out that there are signs of two horizons indicating onsets of wet conditions in the bog which Hyde took as a yardstick for Llyn Fawr,⁷ viz. at 150 and 190 cm.; and though he suggested moving the date of the find from the earlier to the later of them, yet if one keeps it with Hyde at 190 cm. it will consequently be earlier than Hyde supposed. Palaeobotanically, in fact, its date is not fully proven; and this seems to leave the question primarily to the archaeologists. Now Fox dated it c. 500 only because Leeds had dated B1 cauldrons from 600 onwards. And Leeds did that only because he had dated A cauldrons from towards the middle of the seventh century along with buckets, which he dated wrongly, as we have seen (p. 139), by the Tomba del Duce at Vetulonia. Really, it is B1 cauldrons that we must date from towards the middle of the seventh century. Accordingly, on Fox's reasoning, which in itself is entirely good, the upper limit of date for the Llyn Fawr find will be not c. 500, but c. 600. And this was in fact the date which Fox, rightly, gave to the most striking constituent of the find, namely its Hallstatt C iron sword,⁸ which he supposed was 100 years old when deposited. That supposition is quite gratuitous. The Llyn Fawr find as a whole,⁹ with its mixture of bronze and iron, and of native Late

¹ For these see MacWhite in *Journ. Cork Arch. Soc. Hist. Soc.* xlix (1944), 122 ff.

² Leeds, *op. cit.* 10–12, with pl. vii.

³ e.g. lately MacWhite in *Iris Hibernia* (Fribourg), 1956, 11.

⁴ First: R. E. M. Wheeler, *Archaeologia*, lxxi (1921), 136, pl. xii, 1; Leeds, *op. cit.* 8–10 (fig. 2), 32, no. 17; Fox, *Antiq. Journ.* xix (1939), 371–2, pl. LXXII. Second: Fox, *ibid.* 369–73, pls. LXXIII–

LXXIV.

⁵ *Ibid.* 391–402.

⁶ *Ibid.* 378–9.

⁷ H. Godwin in *Proc. Prehist. Soc.* xii (1946), 10.

⁸ Fox, *op. cit.* 373–6, with pl. LXXIV and fig. 3.

⁹ Handiest concise description now: Grimes, *The Prehistory of Wales* (1951), 221–3 (and see Index), with figs. 25, 37, 63 (6–8), 72, and pl. vii.

Bronze and foreign Hallstatt types, must be dated by those Hallstatt types, in the normal way and without manipulation. Were they really of date 500, they should show signs of Hallstatt D, like the grave at Oss which we mentioned earlier (p. 143). But they do not: they are of Hallstatt C. And their dating has no need, now that we have Leeds's cauldron date put right, of retardation in deference to anything or anyone. Besides the sword, they comprise a Hallstatt C bronze razor (Mrs. Piggott's Class III),¹ and three back-looped bronze bosses, originally called 'breast-discs' but really harness-ornaments² or 'phalerae' (*Faleren*) like those here previously noticed (p. 155), only not now of a Late Urnfield, but of a Hallstatt C variety, with sunken centre.

It is Merhart who has lately shown this.³ And in doing so, he has held the whole conception of 'retarded' dating for Britain (and so for Ireland) up to his colleagues' ridicule. How far, then, is his deriding of our 'culture-historical ice-box' justified? We have seen that it is justified to the extent that we must replace '500 or later' by '600 or later' for Llyn Fawr.⁴ However, it is not justified to the extent of making Hallstatt C stop before a time far advanced on the way between those dates. For we shall shortly see that Hallstatt D cannot supervene until after c. 550. And so, with our having recognized two Late Urnfield *Kurd-Eimer* above for him, and with his having up-dated Llyn Fawr by a century now for us, honours seem even, and his joke is over. We may therefore pass by the Llyn Fawr bronze bridle-cheekpieces, which will soon be dealt with elsewhere,⁵ to remark that from the Thames at 'Old England', Brentford, along with more Hallstatt C things including a real winged chape, there is another 'phalera' of the same type as at Llyn Fawr.⁶ Perhaps there are more still.

Meanwhile, before Britain and the opposite continental shores had been reached by the Hallstatt C/D transition—and probably well before—Atlantic cauldron-makers had gone on from the B1 to produce the B2 class, in which the staples, now with exaggerated flanges, are secured no longer by casting on, but by 'lug-and-loop' or complex 'rivet-rod' devices.⁷ In addition to the Battersea and Ballyscullion cauldrons, and the Ipswich, Poolewe, and two Irish fragments which make up Leeds's B2 list, we now have a fragment in Dublin from Dalkey (Co. Dublin),⁸ and from England the interesting cauldron found at Sompting (Sussex). This⁹ was in a hoard

¹ *Archaeologia*, lxxi, 134, pl. ix; *Antiq. Journ.* xix, 370, fig. 1, 6; *Proc. Prehist. Soc.* xii (1946), 128, 134, fig. 8 and 141, no. 96; Grimes, *op. cit.*

² *Archaeologia*, lxxi, 135, fig. 1 and pl. ix; *Antiq. Journ.* xix, 370, fig. 1, 14; Grimes, *op. cit.* 75, 222, fig. 63, 6-8.

³ Again in *Jahrb. d. Röm.-Germ. Zentralmus. Mainz*, iii (1956), 85-86, with illustration Abb. 9, 13-15, after Grimes.

⁴ As Prof. Piggott had in fact just independently suggested: *Proc. Soc. Antiq. Scot.* lxxvii, 184.

⁵ These (one and a fragment) are not winged chapes, as both we and Merhart have erroneously called them: see Piggott, *ibid.* They are to be republished shortly by Dr. M. E. Mariën, in his new

monograph on the finds from Court-Saint-Étienne in Belgium, which resemble Llyn Fawr in these and a number of other features. See meanwhile *Actes du IV. Congrès Internat. des Sc. P. & P. Madrid 1954* (1956), 887 ff.

⁶ R. E. M. Wheeler in *Antiquity*, iii (1929), 20 ff., pl. 1, fig. 1, 10; chape, pl. 11, fig. 1, 9.

⁷ Leeds, *op. cit.* 12-15; list, 34.

⁸ *Proc. Prehist. Soc.* xii (1946), 160; we are indebted to Dr. Raftery for further information.

⁹ E. Cecil Curwen in *Antiq. Journ.* xxviii (1948), 157-63; cauldron, figs. 1-2 and pls. xviii-xix; axes, pls. xx-xxia; 'phalera', fig. 5 and pl. xxib. It cannot be a hub-sheath from a Hallstatt wooden wheel, as Prof. Piggott and C. F. C. H. over-

together with seventeen socketed axes, including some similar to those in the Llyn Fawr find, with sheets of bronze from at least one other cauldron, of unknown class, and lastly, a boss-shaped bronze object which comparison with Merhart's illustrations shows us was certainly another Hallstatt C 'phalera', of the hollow-conical or *Krempenbüchel* type: it is almost exactly matched by three of the many from the Hallstatt cemetery itself.¹ Our B2 cauldrons then belong also to the period of Hallstatt C; presumably to its later years, c. 600–550 B.C. or a little after.

It would seem, then, that the influence from the Late Urnfield culture that we have seen (whatever its means of introduction) at work in these islands from c. 750 into the seventh century, and extended in the latter part of that to include a few elements from Hallstatt C, was succeeded around 600 by the more thorough-paced Hallstatt C contributions seen e.g. at Llyn Fawr,² their parent culture having by then spread nearer to the Continent's north-western coasts. We can in fact divide the material attesting these foreign influences and incomings into three phases:

(a) A first phase c. 750–650, in which they were wholly of Late Urnfield character, when not either Scandinavian (pp. 158, 186–7) or Mediterranean (pp. 175–84). To this belong first the imported Kurd buckets (c. 750–700) and the initial acquaintance with Mediterranean cauldrons (shortly before 700), and then the production of Irish–British buckets and Class A Atlantic cauldrons (c. 700–650), with Class B1 beginning shortly before 650 to be made beside them.

The horse and wagon gear of this phase, as seen at Heathery Burn and elsewhere, has been reviewed above (pp. 153–6). With it, as originating likewise in the continental Late Urnfield culture, we may place rare bronze-hilted swords (at home in the eighth century): the antenna sword from the river Witham below Lincoln,³ and the Auvernier sword of which a hilt-fragment was scrap in the hoard from Wickham Park, Croydon (Surrey).⁴ The Covesea type of bracelet and its continental analogues have been noticed on pp. 156–8. There are also, in Scotland, the small plain cast bronze bowls from Ardoe (Aberdeenshire) and from the Balmashanner hoard (Angus), which have analogues of this same period in the middle Rhineland.⁵

As regards the hoard-associations of buckets and cauldrons in this phase, it should by now be clear that on the Irish side Whigsborough ('Dowris'), on the Scottish side Duddingston Loch, and on the Lowland English, Meldreth and Hatfield Broad Oak with their 'carp's tongue sword' connexions, all stand for

stimulated each other into thinking in 1953 (*Proc. Soc. Antiq. Scot.* lxxvii, 180, 185), because those are always made of two equal halves riveted together, whereas this is raised all in one.

¹ Merhart, *op. cit.* 76, with Abb. 9, nos. 23 (Hallstatt, grave 465) and 21 and 24 (grave 469).

² Cf. also the Leckwith (Cardiff) hoard: *Antiq. Journ.* xiii (1933), 299–300; Grimes, *op. cit.* 75, 189, fig. 66, 1–11.

³ *Proc. Soc. Antiq.*, 1st ser. ii, 199; Evans, *Anc. Bronze Impts.* 287, fig. 330; *Archaeologia*, lxi, 1, 47, fig. 161; lxxiii, 265, pl. XLVIII, fig. 55; Sprockhoff, *Die germ. Vollgriffschwerter* (1934), 113, no. 138.

Taf. 12, 12; *Arch. Journ.* xc (1933), 142, fig. 3; ciii (given by C. F. C. H. (1946) too late a date), 11–12, pl. III, a–b.

⁴ Sprockhoff, *op. cit.* 136, no. 49, Taf. 5–9 (previously unrecognized; the hoard is Evans's no. 107).

⁵ Balmashanner: *Archaeologia*, lxi, 1, 550–6, fig. 193; *Proc. Soc. Antiq. Scot.* xxvi, 182 ff., 187–8, fig. 5; Ardoe: *ibid.* ix, 269; Abercromby, *Br. Age Pottery*, ii, 21, 124, o.7. Childe, *Prehistory of Scotland* (1935), 161: cf. Rhineland hoards of Homburg, Wonsheim, etc., *Alt. uns. heidn. Vorzeit*, v (1911), 133 ff., 140, fig.

assemblages typical of the seventh century (pp. 138-49, 176-87), which are linked not only by the buckets that they have in common, but also (pp. 149-60) by the material of Heathery Burn.

(b) A second phase, from around 650 till towards or about 600, when the same influences were somewhat altered by elements drawn from continental Hallstatt C. It can be taken as assured, though it cannot be argued here, that these include the Hallstatt bronze sword, introduced from Belgium and quickly rendered into its earliest British version.¹ During this phase, the Irish-British bucket apparently ceases to be made; among Atlantic cauldrons, Class A disappears likewise, and Class B becomes absolutely prevalent. The horse-gear and other exotic types are those of Parc-y-Meirch: it is not certain that the Horsehope and Welby hoards are as late in the seventh century as this (pp. 154-9). In remoter Scotland the hoard from Adabrock in the Isle of Lewis² (beside the Scandinavian-Irish sea-route) contains the rim-fragment of a small bronze vessel which seems Hallstattian,³ though it could be slightly earlier if still belonging to a Stillfried-Hostomice cup, like those from Saint-Martin-sur-le-Pré (p. 143). The date of the hoard's deposition must depend on that of its blue-and-white glass bead, which is not yet certified; apart from that, nothing in it need certainly be later than 600.⁴

(c) A third phase, from around 600 on into the sixth century, when Hallstatt C incomings are marked finally by the iron sword, along with equally explicit bronze types—perhaps again from Belgium, though Fox thought of Burgundy and the western French coast.⁵ The first part of this phase, c. 600-550, is marked best at present by the Llyn Fawr find (p. 187), and this shows B1 cauldrons still in use, though somewhat worn.⁶ But the Sompting hoard (p. 188) shows that it also covers B2 cauldrons, which are thus the latest of the Atlantic cauldron series in associations and typology combined. The phase can then continue past 550 to c. 500.

On the low chronologies which we have been rejecting in this paper, B cauldrons might be supposed to continue in regular use until Late Bronze culture in any district, whether of Britain or of Ireland, was superseded by Iron Age, at dates varying, geographically over both the islands, from the fifth to the second century B.C. at earliest. We believe that such survival will have been no more than exceptional, for we have yet another type of cauldron to bring forward.

¹ See especially Mr. Cowen's recent recognition of this British version in the Kirke Søby hoard in Denmark, not after Montelius Period V, which cannot last longer than to between 650 and 600 at the latest: *Proc. Prehist. Soc.* xviii (1952), 129 ff. For the swords and their associations in Belgium, see Mariën, *Oud-België* (1952), 275 ff., esp. fig. 265, Gedinne, compared with 264 from the Tyne at Newcastle (Evans, *Anc. Bronze Impts.*, fig. 344), and 279, Harchies.

² *Proc. Soc. Antiq. Scot.* xlv, 27 f.; Childe, *op. cit.* 153; and *Scotland Before the Scots* (1946), 131 and pl. xii, 1.

³ Childe, *ibid.*, citing the Hallstattian bowl *Alt.*

uns. heidn. Vorzeit, 11, iii, Taf. v, 6, = Déchelette, *Manuel*, ii, 2, fig. 304, 3, from Kreuznach; Piggott in *Proc. Soc. Antiq. Scot.* lxxvii, 185, has compared the cross-handleholder bowls of Merhart's angular class B2b (misprinted 'B2f').

⁴ Childe's suggestion, *ibid.*, following Mrs. Piggott in *Proc. Prehist. Soc.* xii (1946), 124, has been of c. 500.

⁵ *Antiq. Journ.* xix (1939), 375-6. The Belgian case put by Mariën in his *Oud-België*, 290 ff., will be restated by him in his forthcoming Court-Saint-Étienne monograph (p. 188, n. 5).

⁶ Fox, *ibid.* 373.

G. THE LONDON CAULDRON AND THE HALLSTATT D TYPE

The British Museum purchased in January 1859, from a Mr. William Edwards, a collection of antiquities of which five were stated to have been 'all found in London, chiefly in the bed of the Thames'. The others are of no interest here, but one is a large bronze cauldron,¹ with part of one side missing but otherwise with body well preserved, the condition of which will leave little doubt, in the mind of anyone familiar with finds from London and the Thames, that it is from the bed of the river. It has rather a shiny green patina, consistent with its having lain in peaty ooze, and shows traces inside, beneath its rim, of the typical whitish-grey concretion of Thames mud known familiarly as 'race'.² We may reasonably accept it as having come from the Thames, then, in one of the reaches inside London; it will have been found at some time around or towards the middle of the nineteenth century, no doubt either in bridge-building or embanking, or in dredging. It is shown in pl. xxiii f and fig. 11, A, the latter again from the pen of Mr. Waterhouse. It was given passing mention by Reginald Smith in the Museum's *Bronze Age Guide*,³ by Leeds in the paper of 1930 already so often quoted,⁴ and by Mr. C. E. Vulliamy in his book of that same year;⁵ but none of them managed to identify it.

Description. The cauldron has been raised from one single plate of bronze. Its body-form is rather more than half of an oblate spheroid, with the curve of the bottom somewhat flattened, and that of the sides rising steeply and inclining inwards above to a sharp shoulder, from which the rim is inbent almost horizontally, slanted very gently up into a slight ridge and then again gently down, to end in a lip hammered out to project nearly vertically down as well as up. The height of the vessel is 13.6 in. (34.5 cm.); its maximum diameter of body 26 in. (66 cm.); and its internal diameter of mouth about 20.7 in. (52.6 cm.). The bronze sheet of which it is made is about 0.5 mm. in thickness except in the inbent rim; there, it is thickened to about 4 mm., which is also the thickness of the vertically-hammered lip.

The missing part of one side is broken away to a breadth of roughly 12 in. or about 30 cm.; the Museum has secured the rim all round and over this by a flat iron hoop inside (seen at the back in pl. xxiii f). It is clear that within this missing part one of the vessel's two opposed handles was affixed. For on the opposite side the rim shows three small circular rivet-holes (fig. 11 A, inset). The central one is between the ridge and the shoulder; the two lateral ones are between that and the lip. Adjoining them are traces of iron rust. The cauldron therefore had an iron handle-plate here, riveted through these holes upon its rim; and that opposite will have been identical. All these iron handle-fittings are lost. The rim and shoulder are cracked on this side as shown in pl. xxiii f, but otherwise, apart from some dinting, all that remains of the vessel is in

¹ Dept. of British and Medieval Antiquities, Reg. no. 59, 1-22, 13. We are once more indebted to Mr. Brailsford for transcribing and checking the information, as for kindly arranging for the supply of our illustrations.

² On which C. F. C. H. was instructed by both Reginald Smith and G. F. Lawrence; but the cauldron has certainly been well cleaned.

³ (1920), 55: 'plain', and not 'the more usual form'.

⁴ *Archaeologia*, lxxx, 3, n. 1; omitted from further consideration there along with various other cauldrons, certainly or probably of the Early or the Roman or later Iron Age.

⁵ C. E. Vulliamy, *The Archaeology of Middlesex and London* (1930), 109: 'found in London'.

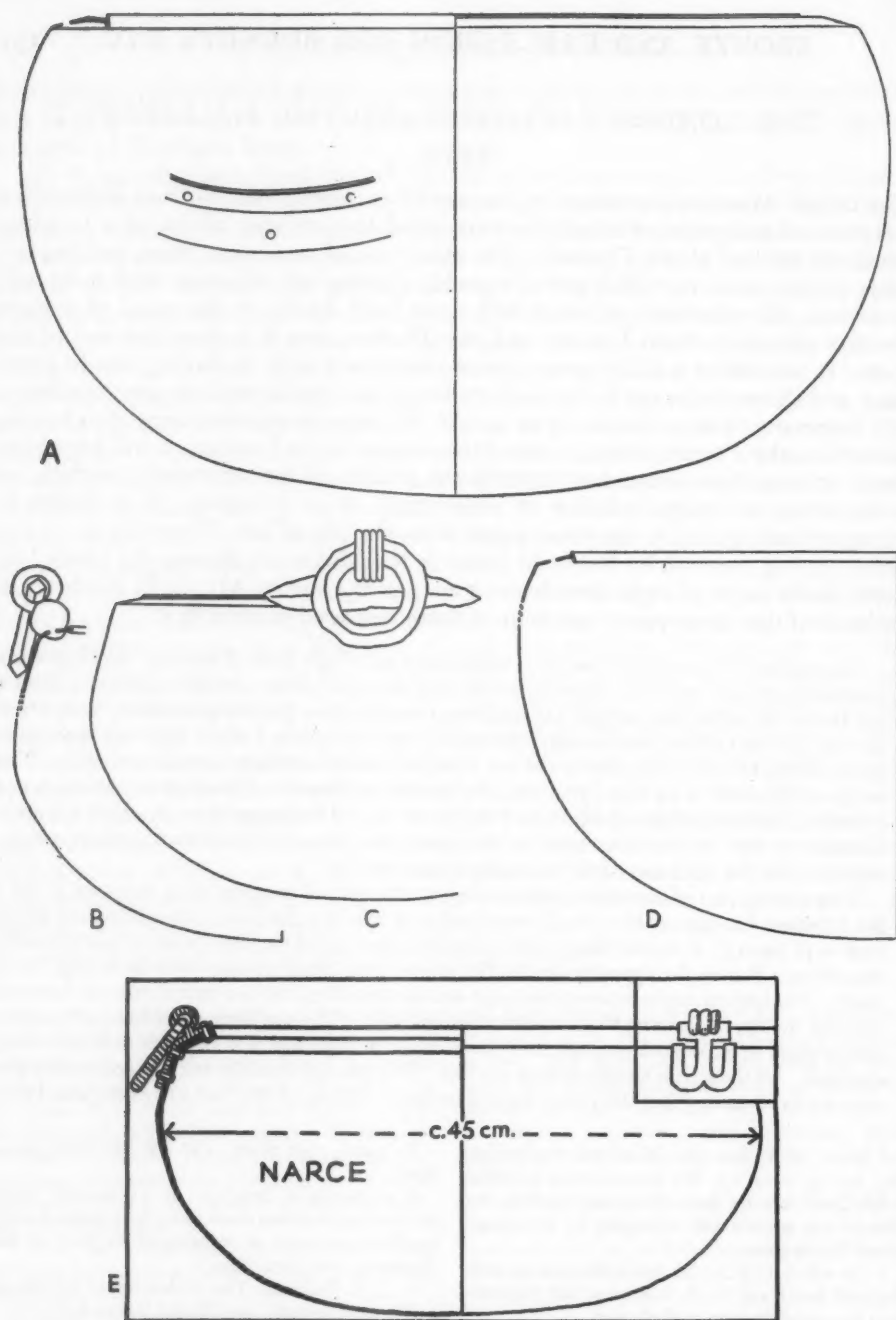


FIG. 11. Late Hallstatt bronze cauldrons. A. London, probably from the Thames ($\frac{1}{2}$). B, C. Heiligenkreuztal (Hohmichele), Kr. Saulgau, Württemberg (c. $\frac{1}{2}$). D. Vilsingen, Hohenzollern (c. $\frac{1}{2}$). From Italy: E. Narce, Cemetery C, Tomb 1 ($\frac{1}{2}$) (Mus. Villa Giulia, Rome).

quite fair condition. Its green patination, and internal traces of concretion now cleaned away, have been described above.

Cauldrons of this sort are well recognized in the Hallstatt culture of West-Central Europe. The identification of this one with those presents no difficulty, once it is seen that the three rivet-holes were for the securing of an iron handle-plate, with tapering ends and thick cushion-like middle from which the staple that holds the free-riding handle-ring projects: for this is a standard feature of the type. Fig. 11, B-C, shows it, on the closely similar cauldron from the huge Late Hallstatt barrow known as the Hohmichele, in the woods of Heiligenkreuztal (Kr. Saulgau) in Württemberg near the Upper Danube.¹ Fig. 11, D shows another, resembling the London one even more closely in its profile: it is one of the two from a more normally large-sized barrow of the same period, at Vilsingen in Hohenzollern.² This type of cauldron was given prominence nearly fifty years ago by Reinecke,³ and soon afterwards by Déchelette.⁴ Further examples have been published more recently from time to time, notably by Schaeffer from one of the Haguenau barrows in Alsace,⁵ by Paret from the Cannstatt wagon-grave,⁶ and from the neighbourhood of Trier by Dehn,⁷ who in 1951 has given them a more extended study.⁸ Throughout their distribution, in these south-west German and adjoining French and Swiss regions, as likewise in Bavaria,⁹ the associations of such cauldrons are Hallstatt D. The significance of this final Hallstatt period, now in some regions subdivided into phases,¹⁰ has been much enhanced lately by the discoveries at Vix and the Mont-Lassois in eastern France, and in south-western Germany at the Heuneburg hill-fort on the Danube and the adjoining Hundesingen barrows, which have produced about eight such cauldrons in the past, and lie near the Hohmichele whence came our fig. 11, B-C. Of the new picture of Late Hallstatt activity and wealth that is emerging, our cauldrons are thus definitely part. They are being studied by Dr. S. Schiek of Tübingen University for the work he is preparing on all this period's rich graves in Württemberg and Hohenzollern; and we have to thank Dr. Schiek both for our fig. 11, B-C and D, together with numerous other drawings of cauldrons not here reproduced, and also for a distribution-map

¹ Mus. Tübingen.

² Mus. Sigmaringen.

³ *Alt. uns. heidn. Vorzeit*, v, 329 ff., with figs. and Taf. 56.

⁴ *Manuel*, ii, 2, 777, with fig. 301.

⁵ C. F. A. Schaeffer, *Les Terres funéraires pré-historiques de la Forêt de Haguenau*, ii, 141, fig. 124, top right.

⁶ *Fundberichte aus Schwaben*, n.f. viii (1935), Anhang 1, 10-11.

⁷ *Trierer Zeitschrift*, xiv (1939), 136-7, Eckfeld; xv (1940), 49, Taf. XIII, 3, Thoma.

⁸ *Ibid.* xx (1951), 44 ff., with Abb. 21-22 and n. 96. We are much indebted to Professor Dehn, not only for bringing these publications by him to our notice, but also for helpful discussions on the type and on its period in general.

⁹ G. Kossack in *Bayerischer Vorgeschichtsblätter*, xx (1954), 1 ff., 20, 22, 30, Abb. 12, 2: they belong here to his form-groups II and III, corresponding in the main with the two principal phases of Reinecke's Hallstatt D. Being rarer and much larger than the cross-handleholder bowls of Hallstatt C (his form-group 1), Kossack thinks of them as indicating bigger banquets for fewer banqueters, and therefore a more eminent and exclusive chieftainship now arising, with wealth in southern trade: see below, pp. 195, with n., 196.

¹⁰ For Bavaria, see preceding note; for the Württemberg-Hohenzollern area, H. Zürn in *Germania*, xxvi, 116; xxvii, 20; xxx, 38: phases, D1 and D2. See further pp. 196, with n. 1, 197; in north-eastern France, the 'Jogassien' of Favret is later than Zürn's D1, and may start even later than his D2.

which has provided nearly all of our small sketch-map fig. 12. We print this, by his permission, as a rough guide to the entire distribution of the type, pending the definitive map of this which he hopes to publish soon. The map suggests, as will be seen, that it may have been from the Trier region, and from Belgium (where

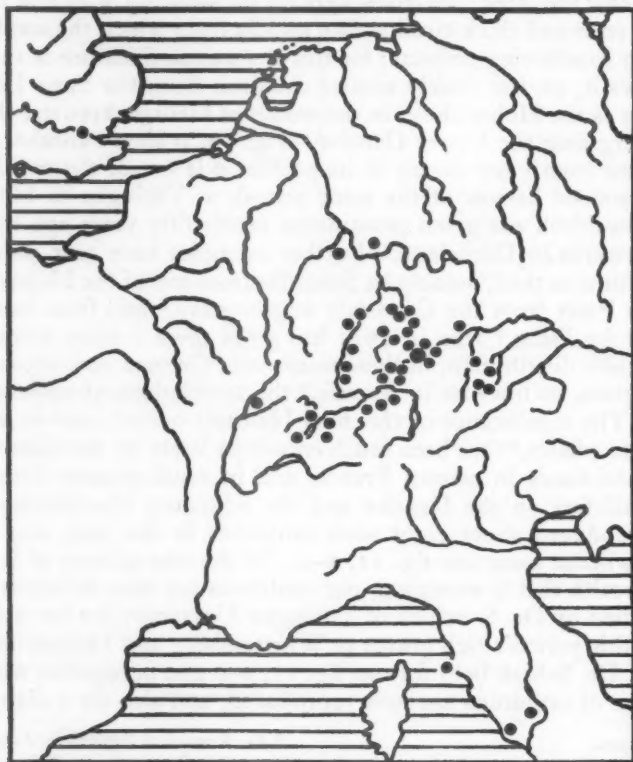


FIG. 12. Sketch of the distribution of Late Hallstatt bronze cauldrons and related cauldrons in Italy (after Schiek, with few additions).

other finds of the period¹ hint that more such cauldrons may still await discovery), that the London cauldron was brought across to Britain.

Being represented from between forty and fifty sites, the type naturally shows some variation, and this is mainly in the degree of inbending of the rim. The London cauldron shows the standard form, though it is more inbent than most; others again are less inbent than most. The conclusion indicated seems to be that in Hallstatt C, the peoples of these regions remained faithful to the cross-handle-

¹ See Mariën, *Oud-België*, 301-32.

holder bowl (p. 155), and to the situla which succeeded the buckets of the Kurd type (pp. 138, n. 3; 185, n. 6), and that then these larger cauldrons in beaten bronze were adopted, with the change to Hallstatt D, under influence from Mediterranean quarters. Kossack, indeed, has lately been thinking of them as imports;¹ even if in fact the majority known were made within the bounds of the Late Hallstatt culture, it seems very clear that at least some were imports, and that the type as a whole, with the technique of raising a vessel of these cauldrons' size in one from a single plate, was in fact introduced from Italy. The Hallstattian smiths, mastering this extension of their technique, will yet have varied in their accomplishment of its hardest feat, the deep inbending of the rim.

We saw above (pp. 174, 176) how smiths among the Greeks and Etruscans began to practise such inbending, in 'quality' cauldrons such as we know from good-class graves, from around 650 onwards. The alternative was to stiffen the rim by an iron mouth-band, known in Greece already, e.g. once at Perachora.² Etruscan Italy shows us a good example of this feature from the cella-deposit (dated c. 650-630, p. 169) of the Regolini-Galassi Tomb at Cervetri.³ But in the same tomb's Left Niche deposit (dated c. 630-610, *ibid.*) there were two plain cauldrons of which one, in the inbending of its rim, is already very like the Hallstatt D form.⁴ Such a cauldron might occasionally have free-riding ring-handles, in the tradition of those we discussed here earlier (pp. 167-76), cast for them in bronze. Our fig. 11, x shows an inbent-rim cauldron with these handles, from the borders of Etruria: it was found in chamber-tomb 1 of the Faliscan cemetery C at Narce.⁵ The material in this tomb ranges from the second half of the seventh century into the early sixth.⁶ The cauldron's profile is again extremely close to what we have seen is typical in Hallstatt D. And the same is true of one from the Etruscan Tomba dei Flabelli di Bronzo ('Tomb of the Bronze Fans') at Populonia, which is very similar in age.⁷ Continuing through the sixth century, we can cite a Greek inbent-rim cauldron with bronze ring-handles from a Greek tomb in Sicily at Gela⁸—though we need search no later in those quarters. In Hallstattian quarters cauldrons with bronze ring-handles are extremely rare; indeed, it could be argued that any such must be an import out of

¹ *Op. cit.* 22: imported, then, for the aggrandized chieftains (p. 193, n. 9).

² See p. 174 above, n. 2.

³ Pareti, *La Tomba Regolini-Galassi* (1947), 197, Tav. xx; here too was the gryphon cauldron noticed above, pp. 168-9, n. 1.

⁴ *Ibid.* 305-6, Tav. xxxviii, no. 304 (no. 305 is rather less like).

⁵ *Mon. Antichi*, iv (1893), 428-9, no. 9, Tav. iv-v, fig. 4-4a: Mus. Villa Giulia, Rome, where sketched by C. F. C. H. in May 1950 with the kind permission of the Director. The forked rivet-plate faintly recalls those plates noticed above as reflecting the Oriental 'siren' form: p. 173, nn. 1-3. The cauldron in the same Museum from the Tomba dei Alari at Cervetri is closely similar, but lacks handles.

⁶ We owe this considered dating to the kindness

of Dr. W. Ll. Brown.

⁷ *Ibid.* xxxiv (1932), 291 ff., Tav. ix, 2; we again thank Dr. Brown.

⁸ *Mon. Antichi*, xvii (1906), 323-4, fig. 240 (the associated pottery bowl not before this century). We are here indebted to Miss Benton. The handles show the 'winged' rivet-plate which stands as a reminder, noticed already in n. 5, of these cauldrons' ultimately Oriental origin. That the inbent body-form in great measure assimilated the profiles of the dinos and the old Greek lebes, so that despite their different handles the latter name is often used for all, we have noticed above, p. 174; see then again de Ridder, *Les Bronzes antiques de Louvre*, ii (1915), pl. 93, esp. no. 2590, cauldron with inbent profile and four bronze ring-handles in reel-shaped staples, on which recall p. 173, with fig. 8, c (p. 168).

Italy. The leading case is the vessel from the Hallstatt D barrow of Les Favargettes, in the Val de Ruz north of Lake Neuchâtel.¹ But wherever this was made, it is the iron handles, with triangular plate as already illustrated (fig. 11, B-C), that are normal, all but universal, throughout the type's Hallstattian distribution. And it is these that the London cauldron had. In other words, this cauldron represents the Hallstattian version, rendered north of the Western Alps, of southern prototypes which themselves were sequels, of the later seventh and sixth centuries, to the Mediterranean cauldrons of the hundred years before 650, which we have traced already from their Oriental origin. It makes the last stage of our story, when direct Mediterranean influence had grown strong enough beyond the Western Alps to displace the older metal-craft tradition, of Hallstatt C and Urnfield times, which for so long, in Italy at any rate, had influenced the Mediterranean. In the West, as we have seen, the Urnfield and Mediterranean influences had mingled, begetting the range of big bronze vessels which we have followed down to the B2 Atlantic cauldrons. But now, in Hallstatt D times, what reaches us from West-Central Europe is itself Mediterranean, and no longer Urnfield, in the craft tradition that it represents.

It only remains to certify an initial date for Hallstatt D, which brought in this change of current. The intensified Mediterranean influence which marks the change must be seen primarily in the light of three distinct advances in the history of Mediterranean expansion northwards, all of them made within the sixth century. They are, first, the establishment of Greek trade at Spina, near the head of the Adriatic, close to the Venetic centre at Este and all the East Alpine passes; secondly, the Etruscan advance across the Apennines to Bologna, facing the Alps from the middle of the Po plain's margin; and thirdly, the building up of Greek colonial energy on the South French coast, in the generations following the foundation of Massalia (Marseilles) about 600, strongly enough to be able to counter the hostility of Carthaginian and Etruscan sea-power, with the great Persian menace against the homeland Greeks behind, by profitable commerce up the Rhône.² The reflection of these in Hallstatt D can hardly be expected before the sixth century's third quarter. And a start for it about 550 at the earliest—for some would say twenty or twenty-five years later—is now further recommended by the excavation-findings, above mentioned, at the Heuneburg on the Swabian Danube. For the latter end of Hallstatt D there certainly oversails the recognized date for the beginning of what came next, namely the inception of the Celtic culture of La Tène: and that date is in the late fifth century. As for the prior end, the combined inferences from the structural sequence of the Heuneburg's fortifications and the presence of datable Greek pottery amongst the imports there, including black-figure sherds of between 520 and 470, leave little room for any early Hallstatt D before 550.³ And of course, regions near to the north-

¹ See *Matériaux* (1869), 242-5 and pl. XII, 1; associated Hallstattian bronze cup, pl. XII, 2, is Déchelette, *Manuel*, II, 2, fig. 302, 3, and Merhart, *op. cit.* (1952), 15 ff., 66, Taf. 9, no. 9—very like no. 10 from Vilsingen, whence came also our Hallstatt D cauldron fig. 11, D.

² Cf. J. J. Hatt in *Actes du IV. Congrès Internat. des Sc. P. & P., Madrid 1954* (1956), 823 ff.

³ We are deeply indebted to Professors Dehn and Kimmig and Dr. Rieth, as directors of the Heuneburg excavations, for our invitation and reception there during the campaign of 1955. The excavations

west European coasts, touched by all this southern trading only indirectly, will not have got forward to their Hallstatt D so promptly. Retardation of anything up to, say, half a century (just as with the coming of Hallstatt C, p. 159) is to be expected. Thus Mariën's 'central' date for the Hallstatt C/D transition in Belgium is c. 500; and a sequel in Britain can be looked for about then but not before.¹ It is with the fifth century, thus, that we have the Hallstatt D cauldron-type in south-east England, and can expect it to supersede the last of the Atlantic series.

The extent of Hallstattian evidences in fifth-century Britain, and their relation to the beginnings of the colonization of our Lowland Zone by the makers of our Iron Age A culture in its various provinces, cannot be properly assessed at present. Dr. D. B. Harden's promised study of our finds of Italic and Hallstattian fibulas² will without doubt help us greatly, though it will bring surprises certainly to some. There is also the embossed bronze bowl-rim from near Ixworth (Suffolk), with its procession of conventionalized horsemen in the Hallstatt D ornamental style, republished in 1939 by Mr. Rainbird Clarke.³ The well-known iron antenna dagger from the Thames at London must be a contemporary neighbour of our cauldron, being of a standard Hallstatt D type, and paralleled in Belgium.⁴ Farther afield, in eastern Scotland, there are the Braes of Gight and Wester Ord Hallstatt D bronze neck-rings.⁵ 'Nut'-moulded Hallstattian neck- or arm-rings, too, reached somehow both North Wales⁶ and Northern Ireland,⁷ while one was also found in north-east Yorkshire close to Scarborough, suggestively near the Iron Age A settlement on the Castle Hill there.⁸ Further, in just what relation to Iron Age A in Wessex should one put Mrs. Piggott's 'wagon-grave' barrow on Beaulieu Heath in the New Forest?⁹ And in the fifth and fourth centuries, can our Lowland Iron Age A coarse pottery

of course are still in progress; with K. Bittel and A. Rieth, *Die Heuneburg an der oberen Donau* (1951), must now be read the further interim reports in *Germania*, xxx (1952), 325-9, and xxxii (1954), 22-59. A brief summary thus far will be found in *Antiq. Journ.* xxxvi (1956), 91-92. For the period in these regions altogether, see Zürn cited above, p. 193, n. 10 (comparing for Switzerland W. Drack in *Jahrb. d. Schw. Ges. f. Urgesch.* xl (1950), 232 ff.); Kossack, *op. cit. ibid.*; and Dehn in *Prähist. Zeitschr.* xxxiv/v (1944/50), 329 ff.; and also *Bonner Jahrb.* cli (1951), 91-92.

¹ This would probably hold true if what we got came directly out of France, where the La Colombe gryphon cauldron from Hallstattian Burgundy (p. 178: Dechelette, *Manuel*, ii, 2, fig. 221; further, W. Lamb, U. Jantzen, cited pp. 166, n. 1, 168, n. 2) shows what could have inspired local smiths there in the sixth century. But evidence, if there is any, has still to be gathered in. That the Continent outside the west-central Hallstatt D region has more in this matter to reveal is shown by the extraordinary cauldron lately found at Brå in Jutland, with bull's heads and ring-handles recalling our Urartian and

Mediterranean prototypes, which yet is La Tène work no earlier than c. 300, probably from Moravia, in the eastern Celtic province: see Ole Klindt-Jensen, *Bronzekedelen fra Brå* (Jysk Ark. Selsk. Skr. III, 1953), esp. 66 ff. But the western Celtic provinces give no hint of anything of that kind.

² See meanwhile *Atti del I. Congresso Internaz. di Preist. e Protostoria Mediterranea* (1950), 315-24.

³ *Arch. Journ.* xcvi, 31, pl. vi.

⁴ *Brit. Mus. E.I.A. Guide*, fig. 84; *Later Prehist. Antiquities*, fig. 23, 1. Belgium: Déchelette, *Manuel*, ii, 2, fig. 316; Mariën, *Oud-België*, 301-2, fig. 282, 3 (Court-Saint-Étienne: see next his forthcoming monograph, p. 188, n. 5; also p. 143, n. 8, Oss).

⁵ Childe, *Prehistory of Scotland* (1935), 163-4, fig. 47.

⁶ Clynog (Hendre Bach, Caernarvonshire): Hemp in *Arch. Camb.* lxxxvi (1932), 354-5; Grimes, *Prehistory of Wales*, 117, pl. xvi, 1.

⁷ Probably Co. Antrim: Armstrong, *Journ. R. Soc. Antiq. Ireland*, liv (1924), 124, fig. 17.

⁸ Reginald Smith in *Antiq. Journ.* xiv (1934), 301-2.

⁹ *Ibid.* xxxiii (1953), 14-21.

after all be connected, further to what we have seen already of Late Bronze Age pottery in the seventh (p. 160), with the 'flat-rimmed' ware of the Highland Zone and Ireland? The possibility still remains to prove.

As for cauldrons, it is true that neither Britain nor Ireland can as yet show any more bronze Hallstatt D examples. But we believe that the famous Irish wooden cauldron, found in 1933 in a bog in Altartate Glebe townland near Clones (Co. Monaghan) and published in 1934 by Adolf Mahr, with pollen-dating by Knud Jessen,¹ is not simply an Iron Age descendant of the Atlantic series, which it resembles all too little, but is an Irish adaptation, rendered in wood, of Hallstatt D cauldrons like ours from London—with perhaps a reminiscence, at most, of the Atlantic series in the ribbing of its staples. Its ornament, derived from the La Tène style, must place it late before the Christian era; and we suggest that by that time, the Late Hallstatt form can have spread widely in both our islands, coming in upon the extreme end of the lifetime of the Atlantic series. At all events, its advent can best fill the gap in England between the latest dated Atlantic vessel—the B2 Sompting cauldron of the sixth century—and the cauldrons of Late La Tène and later times, on which one of us wrote in 1951.² And with that we must end this paper.

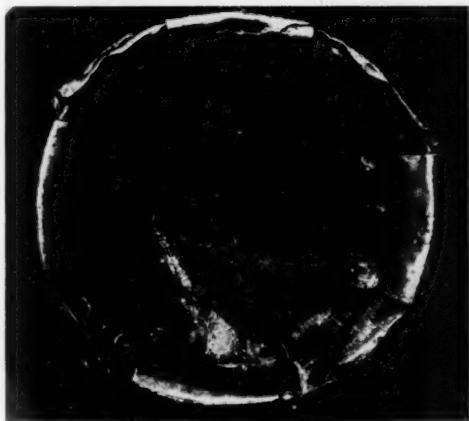
¹ *Proc. R. Irish Acad.* xliii (1934), C, 11–29.

Beyond: Essays presented to O. G. S. Crawford

² Hawkes in *Aspects of Archaeology in Britain and* (1951), 172–97.



a. Bronze bucket, Nannau, Merionethshire



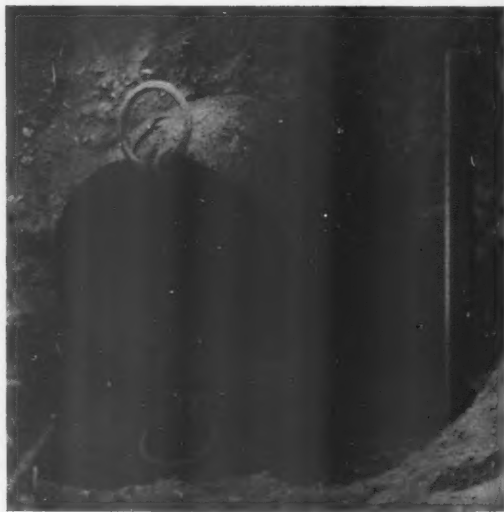
b. Detail of base (height 19.4 in., external diameter of base 8.65 in.)



a. Bronze cauldron, Sheepen Hill, Colchester (height 19 in., maximum diameter 26.5 in.)



b. Detail of handle (ext. diam. 5.5 in.) (Iron clips on rim modern)



c. As found



a. Pottery dinos, Aetos, Ithaka (by courtesy of Miss S. Benton, F.S.A.)



b. Bronze cauldron, W13 (? Ireland)



c. Bronze cauldron fragments, Ballynorig, Co. Kerry



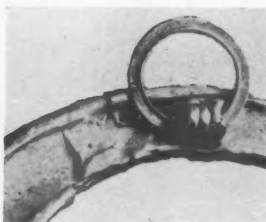
a



c



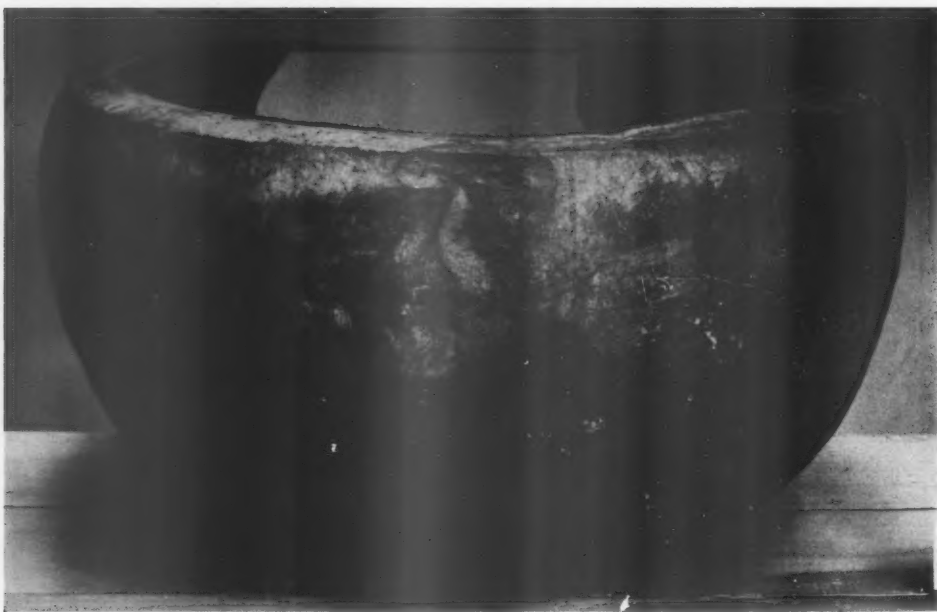
b



d



e



f

a, b. Ring-handle and staple, Abildholt, Denmark (after Becker). *c, d, e.* Ballinvariscal, Co. Kerry (Cork Mus.).
f. Late Hallstatt cauldron, London, probably from the Thames (height 13.6 in., max. diameter 26 in.)

THE MAIL SHIRT FROM SINIGAGLIA

By E. MARTIN BURGESS

THIS mail shirt, which is now in the Royal Scottish Museum in Edinburgh and was in the Meyrick and Noel Paton collections, dates from the fourteenth century. A little is known about its more recent history. Apparently it was bought by a Jewish dealer from an ancient family at Sinigaglia, near Bologna, 'in whose possession it had been beyond any of their records'. It has been published before¹ but because it is in such a good state of preservation, because mail shirts of the fourteenth century are rare, and because something is known about its history, it is important that it should be republished.

This is the first of what the writer hopes will be a series of articles on important mail shirts. Each article will consist of a report of a very full examination of each shirt, followed by any conclusions which can be drawn from the facts observed. As our knowledge of mail increases, the conclusions will probably go out of date, and, at this early stage of research, conclusions can only consist of some remarks about the construction of the shirt and some tentative suggestions about the armourer's mental and physical approach to its manufacture. It is hoped, however, as more shirts are published, on these new lines, that relationships between them will be observable. It is the aim of the writer to describe the shirts so fully in the reports that these can be used later as accurate source-material for a general study of mail.

GENERAL DESCRIPTION (pl. xxiv)

A mail shirt of the fourteenth century of heavy construction and of rump length with short sleeves. It is composed of large iron rings in alternate rows of riveted and whole rings. The borders are decorated with brass rings, the rump and sleeve borders being vandyked in brass.

DESCRIPTION OF THE RINGS

Recorded thickness of wire (in inches to the nearest thousandth)

Whole rings

Iron:	0.108,	0.110,	0.105,	0.115,	0.103.
Recorded variation	.	.	.	.	0.012.
Average	.	.	.	.	0.108.
Brass:	0.1085,	0.091,	0.097,	0.080,	0.076.
Recorded variation	.	.	.	.	0.021.
Average	.	.	.	.	0.086.

¹ *A Critical Inquiry into Ancient Armour*, by Sir Samuel Rush Meyrick, ii (1842), 16; *Engraved Illustrations of Ancient Arms and Armour*, by Joseph Skelton, i (1830), pl. xiv; Baron de

Cosson and W. Burgess in *Arch. Journ.* (1881), 120, No. 1, and fig. 178; Laking, ii, 176-8, and fig. 516; *Foreign Armour in England*, by J. S. Gardner, pp. 19, 20, and fig. 1.

Riveted rings

Iron:	0.056, 0.060, 0.058, 0.062, 0.067.
Recorded variation	. . . 0.011.
Average	. . . 0.061.
Brass:	0.063, 0.061, 0.062, 0.065, 0.064.
Recorded variation	. . . 0.504.
Average	. . . 0.063.

External diameter of rings (recorded parallel to the rivet joint)

Whole rings

Iron:	0.603, 0.607, 0.597, 0.598, 0.608.
Recorded variation	. . . 0.011.
Average	. . . 0.603.
Brass:	0.649, 0.648, 0.660, 0.651, 0.645.
Recorded variation	. . . 0.015.
Average	. . . 0.651.

Riveted rings

Iron:	0.538, 0.539, 0.539, 0.542, 0.543.
Recorded variation	. . . 0.005.
Average	. . . 0.540.
Brass:	0.599, 0.606, 0.615, 0.578, 0.584.
Recorded variation	. . . 0.163.
Average	. . . 0.596.

The whole rings

Both brass and iron whole rings have an irregular diamond-shaped wire section. The angle on the inner half of the diamond is more obtuse. This may be due to wear but it is more likely that it was produced by the process of manufacture. Though the brass rings tend to be of rather thinner section and rather larger diameter than the iron ones, their appearance suggests that both types were produced by the same process. The rows of whole rings slope to the left.

The riveted rings

The riveted rings are made from drawn wire and the measurements suggest that the same draw-plate was used for both brass and iron wire. The wire section is similar to that of the punched rings but the diamond is not so pronounced. This suggests that though the wire was made in a draw-plate it was intended to copy the whole rings. In a two-sided swage draw-plate¹ a diamond could be produced by a file or, even more probably, by a chisel cut on each side of the swage. This would be a simple and natural way of producing the wire for the riveted rings in the shirt.

The rivets are of the wedge type with flat oblong backs flush with the ring surfaces facing inwards. All the rivets, in both brass and iron rings, are of iron. The direction of overlap at the rivet joints is anti-clockwise.

¹ *Antiq. Journ.* xxxiii (1953), 49, fig. 1.

THE CONSTRUCTION OF THE SHIRT

The brass decorations

The neck opening is somewhat rectangular though the top five rows at the back and front continue over the shoulders where they run at right angles to the rows in the sleeve. The first of these rows is of brass whole rings and there are sixty-three of them.

Each sleeve has a vandyked border, the vandykes being of brass riveted rings. There are seven triangles of these brass rings on each sleeve. The top of each triangle is linked to iron whole rings at the ends of the alternate rows which run down the sleeve (fig. 1). Each triangle is composed of ten rings, the arrows on fig. 1 denote row slope. The circumference of each sleeve end is fifty-two rows and, as this does not quite fit with the top rings in the seven triangles, some triangles are packed closer together than is shown in the diagram. As one brass ring is linked to every other sleeve row, and as there are twenty-eight brass rings at the tops of the triangles to be fitted to the sleeve, only a sleeve whose circumference was fifty-six rows would accommodate all the triangles with even spacing.

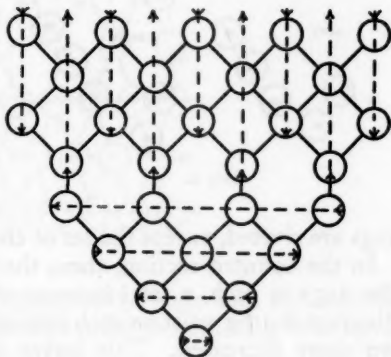


FIG. 1.

There are twenty-one triangles of riveted brass rings round the rump fringe. There are ten rings in each triangle and the tops of the triangles are linked to the first row in the shirt, which is of riveted brass rings. This brass row, which formed the bottom counting row in the analysis of shape, contains 144 rings of which some are linked to the eighty-four rings in the tops of the triangles. The remainder hang free of the triangles and serve to separate them. As the number of rings in the bottom counting row does not match the rings in the tops of the triangles, and, as the rings which are over will not divide into twenty-one equal parts, the spacing of the triangles is not quite regular. In most cases, however, there are two rings between each triangle. The difficulty is overcome partly by adjusting the gaps between the triangles and partly by compressing the tops of some triangles so that they hang on four rings in the counting row rather than five.

The shape of the shirt

The bottom counting row, the last complete row in the shirt, composed of riveted brass rings, contains 144 rings. The top counting row, the first complete row under the arm junctions, contains 130 rings: these rings are whole rings. The rump fringe, therefore, is twelve rings larger in circumference than the chest.

There are four sets of idle rings increasing from top to bottom at the rate of one idle ring to every other row. The sets are on the back, front, and sides but not

quite vertically or centrally placed, for they slope down in a clockwise direction when seen from above. The sets start on row 37 and run down to row 21 from the bottom, and, in each case, the idle rings are riveted rings. In this way the expansion for the hips is produced, thirty-six rings being added.

Decreasing idle rings are placed in the small of the back to form the reduction for the waist. There are six idle rings here and they are in three groups of two rings, on rows 47, 49, 53, 55, 59, 61. This too is not a vertical arrangement but slopes from top right to bottom left. These idle rings are also riveted rings.

Above each hip, and also reducing for the waist, are two sets of three idle rings and one set of two (fig. 2). The pattern is the same on both sides and is not reversed though one group is on the left and the other on the right. The numbers on fig. 2 denote the rows in which the idle rings occur. All these idle

rings are riveted, except the set of three on the left, on rows 42, 44, and 46.

In the counted section, then, there are four sets of increases for the hips, nine idle rings in each, a total increase of thirty-six rings. There are eight decreasing idle rings for the waist on each side and six in the small of the back, a total of twenty-two rings decreased. This leaves a total increase of twelve rings, which is the

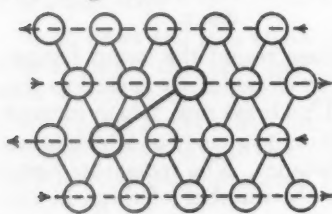


FIG. 3.

already counted difference between the top and bottom counting rows.

On the left hip one whole ring passes through three rings above it (fig. 3). This is not an idle ring nor is it associated with an idle ring and it makes no difference to the shape.

The top counting row is eighty rows from the bottom. There are ninety rows from the front of the neck opening to the bottom counting row. There are ninety-eight rows from the back of the

neck opening to the bottom counting row.

Shoulder-blade expansion

On each shoulder there is an increase of three idle rings to give more room for the hunching of the shoulders and the movement of the shoulder blades. Each set of three increases takes place in one row. On the left the idle rings are riveted and are on row 97 from the bottom. On the right they are whole rings and are on row 96.

The sleeves

Each sleeve has an end-circumference of fifty-two rows. The top of the sleeve contains six rows more than this. These extra rows are removed under the arms

in pairs producing the hole-type construction, two idle rings to each pair of rows removed.¹

Armpits

The sleeves are joined to the body under the arms with a great sense of system. On each side twelve rings in the top counting row are met at right angles by rows

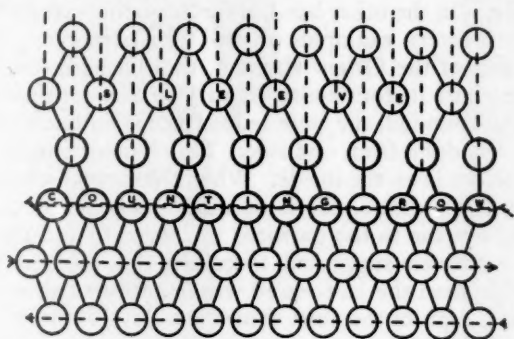


FIG. 4.

from the arms. Every other row in the arm is linked to the body with the end rings in these rows linking alternately to two and one rings in the top counting row (fig. 4).

The neck-band

A band of rings, five rows wide, crosses the shoulders between front and back, giving an edge to the neck opening. There are seventeen rings across the back of the neck and thirteen across the front. Between front and back, over the shoulders, the five rows join the rows in the sleeves at right angles. The riveted rows in the sleeves are the ones linked to the neck-band, because the last of the five rows is composed of whole rings. The same system is adopted as for the underneath of the arms, the riveted end-links take up alternately one and two rings. There are sixteen rings in the neck-band linked to the arms on each side.

CONCLUSIONS

The rings in this shirt are much larger, and very much thicker, than is usual in shirts of any period. The use of whole and riveted rings is a common feature of fourteenth-century mail and this fact, combined with the large size of rings, suggests that the shirt might date from the first half of the fourteenth century, in spite of the vandyked borders which could be said to indicate that the shirt is somewhat later than this.

The wire section of the whole rings is unusual. They may have been punched from sheets of metal in spite of the strange diamond section which has been produced. It could be explained by the punching of rings from a strip rather than a sheet and the use of a punch with a very 'strong' edge, that is, a punch with a

¹ *Antiq. Journ.* xxxiii, pl. xxiii, and p. 199, fig. 6.

very obtuse cutting angle. In this case the angle on the outside of the smaller punch was not so obtuse as the angle on the inner side of the larger punch. If, as seems possible, punches were used, the cutting must have been done from both sides, probably while the metal was hot. Two mounted punches facing each other and joined either by hinged arms,¹ or with the upper and moving punch running in a guide, could have been used and a strip of metal heated in the forge before punching took place. On the other hand, these large rings could have been welded, as they are in some Eastern examples of mail at a later date. In this respect the shirt has a strong feel of the Orient about it, though here the resemblance ends. Most of the whole rings in fourteenth-century mail are thinner and flatter, like washers, and, if at all rounded, the rounded surface is on one side only, suggesting that the punching was done from one side. This type of ring is usually linked so that the rounded surface is on the inside. When these rings are linked with riveted rings of half-round wire section, the same metal surface area faces outwards, the inside causes the least wear to the garment underneath, and the weight is almost halved. It can be tentatively suggested, therefore, that the wire found in this shirt is typologically earlier than the half-round wire mentioned above.

The constructional plan of the shirt shows less development than that found in later shirts. It must be remembered, however, that the larger the rings employed the fewer will have to be added or subtracted to produce the desired shape. It would be of interest, at this stage, to compare this shirt with the late fourteenth-century or, more probably, early-fifteenth-century shirt, No. 920 in the Wallace Collection, signed Ernart Cowein, photographs of which have already been published.² The increases for the hips are in four sets of nine rings in both cases, but on the Sinigaglia shirt the sets are much higher up and do not reach to the rump fringe. In the Sinigaglia shirt a decrease of twenty-two rings was thought necessary for the waist. In the Ernart Cowein shirt, though the rings are much smaller, this decrease is twenty-six rings, but a totally different approach has been made to the reduction. Instead of increasing for the shoulder blades vertically on each shoulder and then removing the same number of rings on each side, under the shoulder blades in diagonal sets of idle rings, the set of six idle rings, in three pairs, attempts to follow the spine to the tense point in the small of the back, where later mail-makers often placed a clump of reductions. The Ernart Cowein shirt is a perfect example of this feature. It must be noted, however, that the total increase at the shoulders is still removed by the decreases at the back.

The rest of the reductions are at the sides, and here the mail-maker was seeing the reductions as a pattern in his mind's eye. So much is clear from the fact that this pattern has been repeated on both sides the same way round (fig. 2), in spite of the fact that one is on the left and the other on the right. This indicates that the maker saw the shirt as an outside observer would see it and did not identify himself with his product. This makes no difference to the fitting of the shirt, naturally, for the same reduction has been made on each side, but it throws an interesting light on the way the mail-maker saw the decreases.

There is no reduction below the rib line, as there is on the Ernart Cowein shirt,

¹ *Antiq. Journ.* xxxiii, 51, fig. 4.

² *Ibid.*, pl. xxiv.



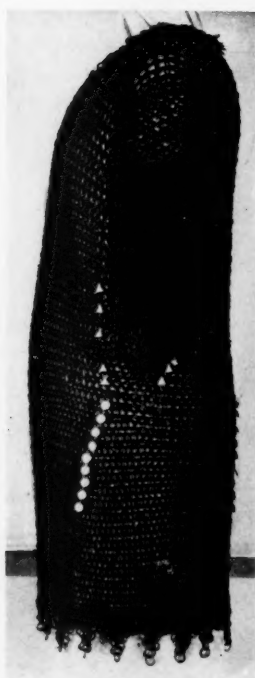
a. Front



b. Right



c. Back



d. Left

The Sinigaglia shirt

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whose maker was conscious of two tense points, that in the small of the back and that in the centre of the front, between the downward-curving last ribs, just above the navel. It is possible, naturally, that the owner of the Sinigaglia shirt was stout, as stout as the very fine dummy on which the shirt is now mounted, but it is much more likely that the maker and his fellow craftsmen were working to a tradition. It is not likely that, with a quilted gambeson, or later an arming doublet, covering the body under the mail, attention to these tense points would have served a vital purpose. It is just that the maker of No. 920 was conscious of what was underneath, while the maker of the Sinigaglia shirt was not. This also helps to make the shirt typologically early, though, of course, it may be in quite another line of tradition. This is quite likely, seeing that the Ernart Cowein shirt is presumably German and the Sinigaglia shirt is probably Italian.

The increase at the shoulders is only three rings to each shoulder. The idle rings are arranged horizontally which also shows a lack of consciousness of the body form underneath. Most shoulder increases are not only increases to create greater area for the movement of the back and a hunching forward of the shoulders, but show an awareness of the shoulder blades as two ridges going down from the sides of the neck with the hollow of the spine between them. Examples of this are the Ernart Cowein shirt, mentioned above, the very fine fourteenth-century shirt from the Hearst Collection, now in the Tower of London Armouries, and a shirt signed Hans Muncher, in the possession of the writer, not yet published.

The vandyked brass borders are bold and are obviously meant to be seen, yet they are not carried out with precision. The tops of the vandykes do not match the circumferences of the sleeves and rump fringe to which they are attached. This, combined with the fact that they are not constructed like the rest of the shirt with riveted and whole rings, might suggest that they were added at a later date to the order of the wearer. If this is the case then the same workshop added the vandykes, for the appearance of the wire used, and its measured thickness, makes it almost certain that it was produced by the same draw-plate. It is far more likely that, for some reason, the brass whole rings, though desirable at the neck because of their smoother contour, were more difficult to make, and, for this reason, were not generally employed for the vandykes. Though some vandykes in the rump fringe are terminated by one whole ring these are probably 'left overs' from the stock originally produced for the neck. The question of the matching of the vandykes to the fringes to which they are attached is best answered by the assumption that the mail-maker simply did not bother to match them exactly. The mistake on the left hip (fig. 3), and the pattern of decrease above each hip (fig. 2) show a lack of ruthless logic and exactness; the irregular spacing of the vandykes is in keeping with this. The general appearance, after all, is not affected.

The shirt is in an excellent state of preservation: it is to be hoped that further research on mail shirts will show us where it originated and decide its proper place in the development of the craft.

The writer is indebted to Mr. C. Blair, F.S.A., for supplying four of the footnote references and to Mr. Ian Finlay and his staff in the Royal Scottish Museum, Edinburgh, for their kind co-operation, which made the examination of the shirt such an easy and pleasant task.

A SECTION THROUGH THE ROMAN DEFENCES IN WATERMOOR RECREATION GROUND, CIRENCESTER

By MISS D. M. RENNIE

THE Roman defences of Cirencester are described by Buckman and Newmarch in *Remains of Roman Art in Corinium* (1850), 9 ff. and map, by Church in *A Guide to Corinium Museum* (1905), 9 ff., and by Haverfield in *Archaeologia*, lxi (1920), 161 ff., who quote earlier authorities.

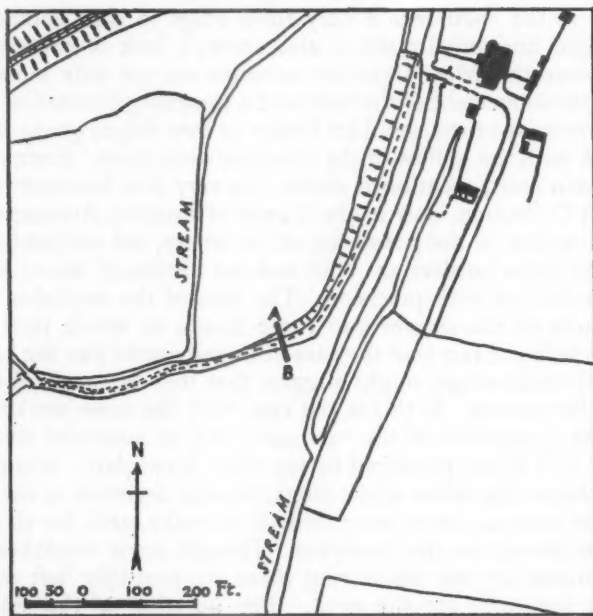


FIG. 1. Plan of Watermoor Recreation Ground, showing the position of the section excavated in 1952.

On the east of the town extensive remains of these defences are still to be seen in the large bank, which passes through the grounds of Cirencester Abbey, and, after interruption by the main Bicester and London road (Akeman Street), runs along the side of Beeches Road. At Watermoor Recreation Ground, of which it forms the boundary on two sides, it swings round and travels westward towards the main Silchester and London road (Ermine Street) (fig. 1). Before it reaches the road all surface traces of it are lost.

Church¹ mentions that a wall could be seen on the outer side of this bank at its south-east corner as late as 1867, when a tenant farming the land pulled it down to use the stone elsewhere. This wall is described as being 4 ft. 6 in. thick and preserved to a height of 6 ft. 8 in. and as having been built mainly of loose stone and rubble backed by earth, with a complete facing of dressed blocks put together without mortar. Haverfield² records an ill-preserved piece of the city wall uncovered in 1774, which was 8 ft. thick (but *v. infra*, p. 210).

In the nineteenth and earlier twentieth century there could also be seen slighter traces of a bank on the west side of the town.³ An excavation of part of this bank was undertaken in 1922 by W. St. Clair Baddeley,⁴ but the results were inconclusive. Although it was generally accepted that the earthworks were remains of defences of the Roman period, until 1952 this was the only attempt to establish their date by excavation.

The opportunity for the excavation described below occurred when Cirencester Borough Council asked permission from the Ancient Monuments Inspectorate of the Ministry of Works to lay a sewer through the City Bank (the earthwork described above), which is a scheduled monument, close to its south-east corner. Permission was granted on condition that an archaeological investigation of the part of the bank to be destroyed might first be carried out. After the laying of the sewer the former profile of the bank was restored.

The excavation

The work of excavation, which was supervised by the writer on behalf of the Ministry of Works, began on 4 February and was concluded on 15 March 1952. A trench 8 ft. wide was dug through the bank near the south-east corner (fig. 2). Later two trial trenches were dug on the outside of the bank. The first of these was merely an extension of the main section, the width being narrowed to 3 ft. The second, 6 ft. by 3 ft., was separated from it by a 3-ft. baulk. The presence of water prevented either of these trial trenches being carried down to the natural gravel, and, as the stratification of the second to a depth of 7 ft. 6 in. was the same as that of the main section, it was not considered necessary to include it with the drawn section.

The site lies at the lower end of the town between two streams, one, on the outside of the bank, at a higher level than the other. There was a good deal of rain at the end of February, which caused flooding of the trench and prevented the complete removal of the original surface beneath the bank, although the natural gravel was reached in several places.

All finds made in the course of the excavation have been placed in the Corinium Museum.

The character of the defences (pl. xxv)

The natural gravel appeared at this point to rise and fall away again from north to south, forming a very slight bank running from east to west. Above the gravel

¹ *Op. cit.* 10.

² *Op. cit.* 166.

⁴ *Trans. Bristol and Glos. Arch. Soc.* xlv (1922),

³ Buckman and Newmarch, *op. cit.* 9 ff. and map. 101 ff.

[illegible]

FIG. 2.

was a layer of stiff brown clayey earth, varying in thickness between nearly 1 ft. and over 2 ft. 6 in. It was noticeable that wherever this brown soil had become water-logged its colour changed to blue-grey. The top of this layer represented the ground surface in Roman times. Fragments of Roman pottery were found in it, as well as a number of flint flakes and cores.

In order to build the city wall, a trench 12 ft. wide had been dug down to the top of the natural gravel and had been filled with stone and gravelly mortar. On top of this was laid a course of undressed stones, above which, but stepped back so as to bring the width of the wall to 11 ft., there was a course of roughly squared limestone blocks of which the top, on the inside of the wall, lay level with the surface of the ground. Buckman and Newmarch¹ describe the wall as having had a limestone facing with a core of rough stones and mortar.

Nearly 20 ft. behind the wall and laid upon the contemporary ground surface was what appeared to be a kerb of stone (pl. xxv, *a*). The stones used were of varying size and thickness and the fact that they were all weathered seemed to indicate that they had been loose stones gathered up from the surface. They were carelessly laid, and some lying slightly apart may have been kicked and scattered by the wall-builders. The brooch (fig. 4, no. 3) was found beside the kerb. If the stones were originally placed by the builders of the wall to mark out the inner limit of the bank to be built behind the wall, it is a little puzzling to find that the tail of the bank runs out 18 ft. beyond them. The line of the kerb does not run parallel to that of the wall, but Lady Aileen Fox, when she visited the site, in commenting on the great width of the bank (nearly 40 ft.), drew attention to the fact that the section was made close to the corner of the defences, where the bank would be widening out, and it may be that the same explanation would account for the position of the kerb. It is more likely, however, that the stones are part of an earlier pathway or of a sill for a timber building.

It seems that the rampart was built of material scraped from the surface rather than dug out of the subsoil. This would be natural in the proximity of streams. The layers composing the bank resembled very much in texture the old ground surface beneath it and in part of the section were indistinguishable from it, while all contained a certain amount of pottery. That wall and bank are contemporary is shown by the fact that a spread of mortar, which must be associated with the wall-building, runs over the old ground surface and is sealed beneath the bank.

Almost certainly there was no ditch outside the wall. The fact that the rampart was composed of material gathered from the surface would indicate this, and, although it was not possible by excavation to prove its absence beyond a distance of 10 ft. in front of the wall, yet, when the sewer was being laid, a watch was kept on the site and no signs of a ditch were then detected. In laying out the defences here some use may have been made of existing streams, one of which runs close to the City Bank along the east side of the town. The channel of this stream is evidently artificial, since it flows at a higher level than a second stream inside the bank which occupies the floor of the valley, and it may possibly have been first diverted to its present course in Roman times.

¹ *Remains of Roman Art in Corinium*, 10.

Immediately in front of the wall and above the original ground surface, which here is sloping slightly downhill, was found a layer of stones set in sandy mortar similar to that used in the wall-building. They were building stones, faced on one side only, and rested with the faced side downward in such a way that their jagged tops were leaning away from the wall. It seems certain that they represent a collapse outward of the whole face of the wall. If this happened and a new facing had later been applied, it would explain the discrepancy between the measurement of 4 ft. 6 in. for the width of the wall at the south-east corner as it existed before 1867¹ and the width of the foundation, as well as that between the measurement given² and those quoted by Haverfield³ for an ill-preserved piece of the city wall uncovered in 1774 and said to be 8 ft. thick. But Church's description of the wall at the south-east corner (*v. supra*, p. 207) is so much like the type of dry stone wall built in the Cotswolds to retain banks, and so inconsistent with the character of the foundation, that it is perhaps safest to regard it as having been a replacement of the original Roman wall at some time after its destruction by those who robbed it to use the stone elsewhere.

No evidence was obtained from the excavation for the date of the destruction of the Roman wall at this point, although the manner in which it was done was revealed by the presence of a trench dug into the bank behind the wall in order to pull out the stone from the back. In this 'robbers' trench' was found a dressed stone, evidently too large for removal, which was quite unweathered and suggests that the back of the wall was faced. The destruction of the wall left as its result a layer of trampled mortar in front of the bank. In recent times, as was proved by the modern rubbish included in its filling, a dry-built stone wall was erected to retain the bank. It is possible that this was not the first of its type to replace the Roman wall (*v. supra*, p. 210), but may itself have taken the place of a wall pulled down in 1867. In front of this modern wall, on the east face of the cutting only and extending 1 ft. into the trench, was found the edge of a flagged path or yard which may have been connected with a cottage which passers-by claimed had stood in this part of the field about sixty years ago.

The profile of the rampart behind the wall had been altered considerably since Roman times by the addition of material on the lower part of the slope, which had been banked up to form a leat, and also by levelling up for the pathway running along the top of the rampart. Tumbled remains at the foot of the slope seemed to indicate that this extended bank had at one time been edged with dry stone walling. It is not known when the alterations were made, but within living memory the meadows on either side of the rampart used to be deliberately flooded and the leat was used in connexion with a drain passing through the rampart to allow a flow of water from one side to the other.

Evidence for the date of the defences

The majority of the datable objects found in and beneath the rampart belong to a period much earlier than that of the building of the rampart (*v. infra*, pp. 211-14). The single very worn coin found (p. 213, no. 1) is of first-century date and two of the

¹ Church, *Guide to Corinium Museum*, 10.

² *Ibid.*

³ *Archaeologia*, lxi (1920), 166.

brooches (fig. 4, nos. 2 and 3) are of La Tène types which lasted into the earlier part of the Roman occupation. A number of small fragments of samian pottery (p. 212) date to the first century, and the coarse pottery, all of which was very worn, and had the appearance of having lain about for a considerable time before being incorporated in the bank, is also mainly first-century in character.

The actual date of construction is suggested by a much smaller group of sherds. Of these, two sherds of Castor ware and a small fragment of colour-coated and indented beaker are not likely to have been made before c. A.D. 175 (v. p. 213). They are the latest sherds found in the bank and, although they are very worn, their small number makes it improbable that the date of construction was later than c. A.D. 200. This date is strongly supported by the occurrence of a large fragment of Samian Form 81 (fig. 3, no. 1), showing less trace of wear than the majority of sherds from the bank, which is dated by Miss Grace Simpson to the middle or second half of the second century. In discussing the date of the Form 81 (p. 212), she draws attention to the significance of the occurrence of this form at Caerwent, in a sand filling dated A.D. 180 or later, and at Silchester, below both the Antonine bank and the stone wall and late bank, and considers that the Cirencester defences must be closely contemporary with the wall and sand filling at Caerwent (A.D. 180 or later).

Finds made during the laying of the sewer

Just inside the City Bank, south of the railway embankment and opposite the gap at the entrance to the recreation ground, was found an iron spearhead (fig. 4, no. 4). It is said to have lain at a depth of 10 ft. from the surface in dark clayey silt. A number of animal bones were claimed to have occurred at the same spot.

Within the grounds of Cirencester Abbey, 16 ft. north of the wall at the edge of the main Bicester and London road, the stone foundations of a building were cut through. These crossed the trench at intervals northwards for 58 ft. and lay about 3 ft. below the modern surface. At two points a stone culvert or drain passed beneath them. There was nothing to indicate their date.

Further within the abbey grounds fragments of Roman pottery occurred and a column base and a stone with square socket were found and deposited in the Corinium Museum.

At this end of the town the sewer passes out through the City Bank at a place where a gap has been made in the rampart. Watch was kept for any possible remains of the wall at this point, but stone-robbers had done their work too well and no traces of it remained.

THE SAMIAN WARE

By MISS GRACE SIMPSON

(The numbers refer to those marked in circles upon the section, fig. 2)

27. Form 81 (fig. 3, no. 1). The latest and largest samian sherd found in the wall-bank was 5 ft. below the Roman surface. A very rare form, only made during the middle and second half of the second century; it is therefore remarkable that Form

81's should also have been found associated with the town defences at Silchester and Caerwent in recent excavations.

The Cirencester fragment is rather thick, and was probably made in Central Gaul; cf. Oswald and Pryce, pl. LXI, 8, for a complete example.

The Caerwent vessel has barbotine ivy-leaves on the side, and its orange-red colour suggests East Gaulish manufacture. It was found behind the East Gate, in the sand put in to fill the space between the stone-wall gate and the first-century bank (O. E. Craster, *Arch. Camb.* (1954), lxii, no. 10). J. A. Stanfield illustrated a complete example with barbotine leaves in *Arch. Journ.* lxxxvi (1929), fig. 11, 51.

At Silchester a Form 81 was found in the occupation levels dated c. A.D. 120-60/70 below both the earlier Antonine bank (c. A.D. 160-70) and the stone wall and late bank (c. A.D. 190-210); cf. Mrs. M. A. Cotton, *Archaeologia*, xcii (1947), 151-2,

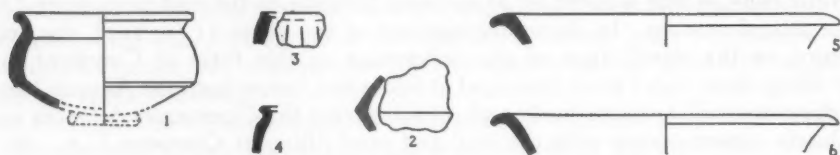


FIG. 3. Pottery from the Roman bank. (4)

and fig. 10, for a Note on this vessel by J. A. Stanfield. Unfortunately he suggested a Trajanic period of manufacture for it, although in his earlier paper he had thought that the form was an Antonine one; a period also suggested by Oswald and Pryce, pp. 203-4. This is more likely, and at Silchester the vessel was associated with other Antonine pottery which was dated up to A.D. 160-70.

These bowls of Form 81 suggest, therefore, that the city wall and bank at Cirencester, the wall and sand filling at Caerwent (c. A.D. 180 or later, *ibid.* 60), and the earlier Antonine bank at Silchester, were closely contemporary, and that they were slightly earlier than the wall and second bank at Silchester.

29. Dr. 18/31. Lezoux ware, c. A.D. 150. Found in the yellow clay layer immediately below the Roman surface of the bank.

4. Dr. 46? A tiny fragment from near the rim.

The remaining sherds are very small, and represent rubbish that had been lying about for a long time:

14. Form uncertain, but from a large plate. South Gaulish.

16. Dr. 27. South Gaulish, probably Flavian.

22. Dr. 24/25. Claudian-Neronian.

31. Dr. 29, showing the upper frieze. Late, very poor work. c. A.D. 85-100.

37. Early Lezoux Dr. 29/37? The tiny beads above the moulding suggest this, also the good slip and fine finish. Probably Trajanic.

38. Lezoux ware. Second century.

The coarse pottery

A large quantity of coarse pottery occurred in the Roman bank, mostly in the form of small and abraded sherds unsuitable for illustration. The majority of the

sherds were of the usual hard, light or dark grey or black Romano-British wares and there were some orange-pink fragments, as well as buff-coloured sherds. There also occurred a number of sherds which seemed to reflect a strong native British tradition in their manufacture and may possibly date from very early in the Roman occupation.

The following sherds, several of which bear on the date of the defences, are described in detail:

1. Carinated vessel. Brownish-grey sandy ware with burnished surface. Fig. 3, 2.
2. Flattened rim of saucepan-shaped pot; hard sandy dark grey ware with burnished surface; lip demarcated by a slight groove; decoration of faint vertical burnished lines. Probably an Iron Age sherd in the B tradition. Fig. 3, 3.
3. Small jar of light brown sandy ware with greyish core. Fig. 3, 4.
4. Two much-worn fragments of Castor ware. One has a dense white paste and traces of dark colour-coat on each surface; the other a slightly softer pinkish-white paste with brown colour-coat remaining on the inside.
5. Two very worn fragments of rough-cast beaker in thin orange-red fabric with remains of brown colour-coating.
6. Small much-worn concave body fragment from an indented beaker; extremely thin orange-red ware with reddish-brown colour-coating outside. This seems to be some local variety of ware modelled on the Castor type.
7. Flat pie-dish rim in coarse grey ware, rather weathered. Fig. 3, 5.
8. As 7, but of finer grey ware with burnished surface. Fig. 3, 6.

The evidence supplied by the few datable sherds among those listed above does not contradict that of the Samian sherd Form 81 upon which the date of the building of the rampart mainly depends. Parallels can be found for the pie-dish rims among Dr. Kenyon's Types A and C (*Jewry Wall*, pp. 80-83), both second-century types, the first becoming common c. A.D. 120, the second not occurring till c. A.D. 160. Dr. Kenyon has also shown (*Jewry Wall*, p. 120) that the date for the appearance of Castor ware on most sites is c. A.D. 170-80. The extremely worn state of the two fragments from the rampart would suggest that their incorporation in the bank need not have taken place till c. A.D. 200. The same dating applies to the sherd of indented beaker (no. 4 above).

The small finds

1. A copper coin in very poor condition found near the surface of the Roman bank. It was examined by the late B. H. St. J. O'Neil, who reported it as possibly an *as* of Tiberius struck in the reign of Augustus (M. & S. 368).
2. A tubular fragment of bronze found in the Roman bank.
3. A small bronze penannular brooch with reverted terminals (fig. 4, 1) found in the modern addition at the foot of the bank.
4. Part of a bronze brooch (fig. 4, 2); cf. Hawkes and Hull, *Camulodunum*, pl. LXXXIX, 4, and p. 308. A modified La Tène III type. Late first century B.C. to first century A.D. Found in the 'robbers' trench' behind the Roman wall.
5. Part of a bronze brooch (fig. 4, 3); cf. Hawkes and Hull, *Camulodunum*, pl.

LXXXIX, 2, and p. 308. A La Tène II type continuing into the La Tène III period. Found beneath the Roman bank beside the stone kerb.

6. Iron spearhead (fig. 4, 4). Found about 10 ft. below the surface in Water-

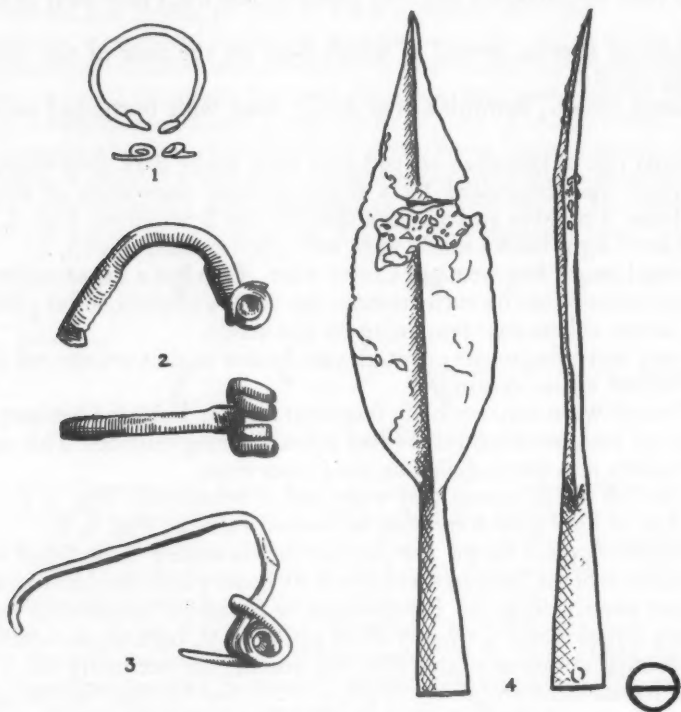


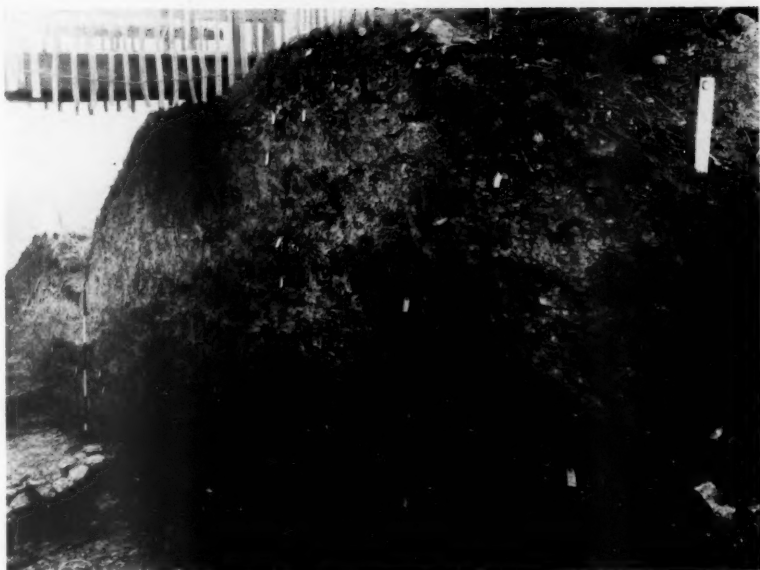
FIG. 4. Small finds. 1-3 ($\frac{1}{4}$); 4, 4a ($\frac{1}{2}$)

moor Recreation Ground (v. p. 211). *B.M. Guide to the Antiquities of the Early Iron Age* (1925), 111, fig. 121. La Tène III type.

Animal bones

Animal bones and shells from the Roman bank were examined and identified by L. F. Cowley, M.Sc., of the National Museum of Wales, Cardiff. The following types were represented:

- Dog; *canis familiaris*.
- Horse; *equus caballus*.
- Sheep; *ovis aries*.
- Ox; *bos taurus* (? var. *longifrons*).
- Pig; *sus scrofa*.
- Oyster.



a. Cirencester City bank. Section through the rampart, east face

Photo. J. Palmer



b. The Wall, with stones of the collapsed facing in the foreground

Photo. J. Palmer

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Acknowledgements

I should like to acknowledge very gratefully the help of the officials of the Ancient Monuments Inspectorate of the Ministry of Works, especially the late Mr. B. H. St. J. O'Neil, F.S.A., and Mr. G. C. Dunning, F.S.A. Thanks are also due to Mr. J. W. Elliott, Borough Surveyor of Cirencester, and Mr. J. Real, Custodian of the Corinium Museum, for their assistance during the excavation; to Miss Grace Simpson for her report on the Samian ware, and to Mr. Graham Webster, F.S.A., for help with the other pottery. I am indebted to Mr. L. F. Cowley of the National Museum of Wales for his identification of the animal bones, to Mr. H. M. Stewart of the London University Institute of Archaeology for his help and advice in preparing the drawing of the section for publication, and to Mr. S. S. Frere, F.S.A., for his very helpful criticism of the report.

NOTES

The Verulamium Forum Inscription.—Mr. Donald Atkinson, F.S.A., contributes the following:—The discovery of fragments which must belong to the dedicatory inscription of the forum of Verulamium is gratifying to historians and epigraphists alike. For the fragments, though scanty, provide the historian with the essentials, the exact date of the inscription, and so presumably of the completion of the forum, they record the name of the most famous governor of Britain, and perhaps throw some light on his character, and on the trustworthiness of his son-in-law's encomium. For whether Agricola came to Britain in the summer of 77 or of 78, the work on the forum must surely have made substantial progress when he arrived; eight years (122–30) for the building of the Wroxeter forum is a not unreasonable conjecture. For the epigraphist the fragments offer an intriguing exercise in restoration, and the excellent photograph of the fragments and their careful description by our Fellow R. P. Wright provide the necessary material.

In the presentation of such an exercise no more is claimed than a certain degree of plausibility, and its justification may be found in that, if it could be accepted, it would solve a problem which has been more than once propounded in the past, and would enable us in one detail to preserve or regain our faith in Tacitus.

The restoration, it will be seen, differs entirely from that provisionally proposed by Wright, and it will be admitted that whether or not this finds favour, Wright's version can hardly be accepted. For since he reads *fvē* on fragment *b* (this *Journal*, xxxvi, 1–2, pl. III) and is thereby committed to regarding this as the second occurrence of the name Vespasian, his placing of the word *design(atus)* in line 2 imposes a reading in that line which seems unacceptable. The extreme abbreviations *p.m.*, *tr.p.*, are rare in inscriptions of the period Vespasian–Trajan. The index of Dessau, *I.L.S.*, gives three examples under Vespasian, all relating to the delimitation of the Tiber bank, and so identical (*I.L.S.* 8904 has *p.m.* but *trib.pot.*); none under Titus, Domitian, or Nerva, and one (*I.L.S.* 283) under Trajan. In contrast, *pater patriae* in full occurs once under Vespasian, once similarly under Titus, Domitian, and Nerva (in all cases with *pontifex maximus* in full), and several times under Trajan (where the greatest degree of abbreviation is *pont.max.*). It is clear that the mixture of titles in full and titles extremely abbreviated in the same line is to be excluded.

But numerous attempts on my part to produce a more plausible restoration with the same placing of fragment *b* have failed, and we must therefore conclude that the two serifs on the left edge of the fragment are not the remains of *f(ilius)*. In themselves, they can be part of *z*, for the fragment is broken above the point where the third serif would appear. If we now transpose fragments *b* and *a*, *DES ign* will come in a place convenient for it near the end of the line.

Thus the alternative restoration is as follows:

[Imp. T. Caesar] *fvē* [spasiani f.] *vesp[asiano Aug. Pont.
Max. Trib. Pot. viiii Imp. xv Cos. vii] des[ign. viii P. P. Censore
Et Caesare Vespas]ian[i f. Do]mi[tiano Cos. vi Design. vii
Principe Iuventu]ti[s Collegiorum Omnium Sacerdote
Per Cn. Iulium A]gric[olam Legatum Augusti Pr.] PR.
[Respublica Catu]yul[ana Civitate Romana Do]NATA*

The absence of *Divi* in the titulature of Titus and his brother will cause remark. It is imposed by the assumption of the trace of *z* on fragment *b*, and so enables us to date the inscription to the weeks following the death of Vespasian on 24th June 79, before the news of the completion of

the formalities concerned with his deification had reached Britain. A Diploma (*C.I.L.* xvi, 24) shows that the ceremonies were not complete in Rome on 8th September. Since the ablative case is the basis of the restoration, its suitability does not enter into discussion.

Such inscriptions as these are not *stoichedon*, and though it is clear that as set out the spacing is reasonable, it would be possible to read *Pontif.* in line 1, *Maxim.* and *Desig.* in line 2, and *Desig.* in line 3. It is probable that further study of the actual fragments of the erased lines is desirable. In line 5 the presence of the preposition seems to be required for reasons of spacing. As here restored, line 5 is centred three letters short of line 4, and two letters short of line 6, as is required by fragment *d*. Line 6, the most interesting and the least certain, is largely conditioned by the position and completion of *NATA*. Since the letters in lines 5 and 6 are very nearly of a size it would be reasonable to suppose that line 6, projecting beyond line 5 by two letters at each end, would contain four more letters, and this is the case with the proposed restoration.

This implies the transformation of the chef-lieu of the Catuvellauni into a *municipium* at the time when according to Tacitus his father-in-law was encouraging the provision of material aids to Romanization, and certainly the completion of so large and elaborate a structure at this early date might well seem to deserve a recompense. It might be thought to explain why Tacitus contrasts the status of Verulamium with that of Londinium, and why for once he uses a technical term in its correct conventional sense.

Reply to Mr. D. Atkinson's reconstruction of the Verulamium Inscription. Mr. R. P. Wright, F.S.A., replies as follows: In response to the request of the Editorial Committee I take this opportunity of seeking to justify the restoration which I proposed in this *Journal*, xxxvi (1956), 8-10, and which I carefully described as provisional. In a search for additional evidence Mr. S. S. Frere kindly reports that 'in 1956 advantage was taken of the forthcoming installation of storage-tanks for oil fuel at the edge of the churchyard adjacent to the discoveries made in 1955 to cut a wide trench in the hope of finding more inscribed fragments. A length of eleven feet of the first-century wall was exposed. The ground was much disturbed by medieval burials, and only one very small uninscribed fragment, 3 by 2½ inches, of the Agricolan inscription was recovered.

A study of the general plan (this *Journal*, xxxvii (1957), 3, fig. 2) shows that, if symmetry was observed, the entrance to the Forum complex where the Agricolan inscription was found in 1955 must be only one of two entrances on the north-east side. There may thus be a comparable Agricolan inscription awaiting discovery near this other postulated entrance lying farther to the south-east. Unfortunately this site is covered by a school-room and by the main path to St. Michael's Church, and it is unlikely that excavations could be undertaken in the near future.'

The conclusion of Mr. Atkinson 'that the two serifs on the left edge of fragment (*b*) are not the remains of *F(ilius)*' but 'in themselves they can be part of *ε*, for the fragment is broken above the point where the third serif would appear' remains an assumption and rejects the evidence of the actual fragment. Admittedly the break along the lower margin of the fragment has come too high for the main stem of the bottom cross-bar of an *ε* to have survived. But there remains intact a blank area, 0.45 inches high, where the bold lower serif of an *ε* would have come, to judge by the comparable *ε* in *VESPA* in line 1 on fragment (*a*). In addition in line 2 the intact *ε* of *DESI* has a bold serif to the bottom cross-bar. I derive my evidence from autopsy and from my full-scale drawings¹ of the fragments. Despite the excellence of the photographs kindly supplied by Mr. Frere, it might well be possible to misinterpret this critical area. On this evidence the alternative restoration put forward by Mr. Atkinson is seen to collapse.

Mr. Atkinson has emphasized the rarity on Flavian inscriptions of the extreme abbreviations *p.m.* and *tr.p.* used in my restoration. These may, indeed, seem to some to be regrettable or even unacceptable. But if one keeps within the limitations which the extant fragments demand, as discussed in my note (this *Journal*, *loc. cit.*) and this reply, an insistence on fuller formulae would

¹ Mr. Frere has kindly taken a squeeze of the critical area which confirms my drawing.

prolong the text, already about 13 feet long, by approximately 3 feet, and would make the first two lines substantially longer than lines 3 and 4, thus producing a text that seems seriously unbalanced.

It seems difficult to justify the omission by Mr. Atkinson of *divi* before *Vespasiani* in lines 1 and 3. It is true that the diploma of 8th September 79 (*C.I.L.* xvi, 24) gives the style of Titus without any filiation, but it is possible that the craftsman who cut this text was following the formula of Vespasian, who stated no filiation either on diplomas (*C.I.L.* xvi, 10-16, 20-23) or on stone inscriptions. It should be remembered that two diplomas of Claudius (*C.I.L.* xvi, 1 and 3) omit the filiation *Drusi f(ilius)* which is normally put on his main inscriptions. It seems reasonable to expect that a large-scale inscription recording the activity of the emperor in a province far removed from Rome would not omit any part of the normal imperial style.

For line 6 the suggestion of *civitate do[n]ata* is very ingenious and attractive. But it seems unwise to adopt this restoration which carries implications of such great historical and cultural importance, when not a single letter of the presumed benefit survives. Mr. Atkinson suggests that the object of his conjectural restoration of line 6 is 'to restore faith in Tacitus'. But does it in fact do so? The result is to show that Tacitus makes a point of Verulamium's being a *municipium* in A.D. 61 (Tacitus, *Ann.* xiv, 33) when he surely would have known, in view of his emphasis upon Romanization in the *Agricola* (ch. 21, 1), that the rank had been conferred through his own father-in-law in A.D. 79, if that were really so. The result would be to convict him of forgetfulness or *suppressio veri*, and would hardly have the effect of restoring confidence.

Late Roman objects from Chalton, Hants. Mr. S. S. Frere, F.S.A., contributes the following note: Recently Mr. A. Corney, Cumberland House Museum, Southsea, showed me two groups of objects which are so unusual that I obtained permission to publish them here in the hopes of learning of parallels. Both come from Chalton between Portsmouth and Petersfield, and are here illustrated by the kindness of the landowner, Mr. W. C. Budden of Manor Farm, Chalton, by whom they have been presented to the Museum. The precise site lies on a southward-running ridge of chalk about $\frac{1}{4}$ mile east of the small villa at 41/721177 (National Grid Reference) explored by Maxton in 1926.¹ Here (41/734175) about 1 mile north of Chalton village a small excavation has been carried out on a hut site of the later Roman period. This will presumably be published one day, so that it is sufficient to say that the hut was defined by a levelled platform c. 30 ft. by 25 ft. and lay among lynchets. The occupation layer was very thin and little stratification survived. The pottery in it ran from the middle of the second down to the fourth century A.D. according to Mr. G. P. Burstow, F.S.A., who has examined it. From this hut came the first group of objects to be described, together with two mid-first-century brooches, a coin of Gordian III, and a hone of calcareous sandstone such as occurs in bands in the Hythe beds of the Lower Greensand.²

1. Tanged iron scraper; no parallel found (fig. 2, B).
2. Small hollow casting of bronze decorated with a human face (pl. xxvi, b, and fig. 1). This is very worn and smooth and the details are somewhat obscured. The neck is pierced for a rivet, and there is a broken cast loop at the rear. Not enough of this loop remains to show where the area of greatest wear lay. There is a hole due to damage at the front of the crown. The diameter of the open neck (0.5 in.) is only sufficient for a light rod. Parallels have not been found. That it is a sceptre-top is made unlikely by the slight size and worn condition of the head itself, by the rear loop and by the context of the find; it is more likely to be part of some everyday object in continual use. It may be suggested that it is the metal cap of a light riding whip, a slight leather thong being attached to the loop.

¹ *J.R.S.* xvii, 208.

² This hone was kindly examined at the Geological Museum.

The wide lentoid eyes recall those of the Belgic masks from Welwyn;¹ but the absence of moustache and the greater sophistication of the face suggest that though this is native work it is of late Roman date. There is a distinct resemblance both in the eyes, and the clean-shaven face and hair-line, to the imperial portraits on fourth-century coinage. A fourth-century date would suit the context well, and the piece may be taken as evidence for the vitality of the native bronze-smith's art in the last century of Roman rule.²

The second group of objects to be described came from a large lynchet about 80 ft. south-west of the hut, and consist of a late Roman beaker which contained (according to Mr. Budden who found it) the six bronze combs which are illustrated. Twenty feet away in a trench cut through the lynchet was found the iron knife.

3. Socketted blade of iron, perhaps a pruning, but more probably a meat knife; cf. *Devizes Museum Catalogue* ii, pl. LIV, 3 (fig. 2, c).

4. Beaker of sandy, dark brown ware from which the surface has weathered; no traces remain of decoration (fig. 2, A). Perhaps a copy of a Castor Ware or New Forest beaker, where this small type of high rather heavy base appears to be typical of the fourth century.

5. Group of six thin bronze plates (pl. xxvi, a), found inside the pot just described. The four larger plates $\frac{1}{16}$ in. thick taper towards the butt in section; the smaller pair do not, but

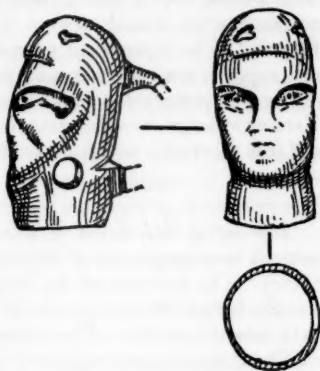


FIG. 1. Bronze head from Chalton. (†)

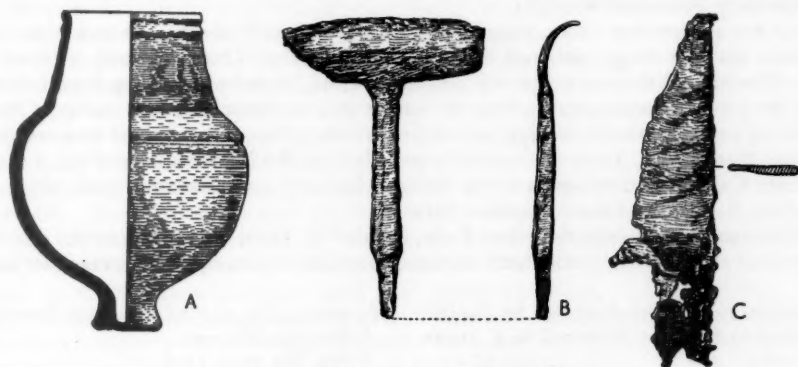


FIG. 2. Objects from Chalton. (†)

instead are provided with a groove each side across the butt. All the plates are toothed, but the teeth do not exactly coincide in their spacing except in the case of two. The teeth appear to be somewhat worn.

These pieces are very puzzling, and precise parallels are absent. However, Mr. G. C. Dunning

¹ *Arch.* lxiii, pl. II; B.M. *Guide to Later Prehist.*

² Cf. Hawkes in *Aspects of Archaeology in Britain and beyond*, 191.

F.S.A., has referred me to somewhat similar objects in Holland,¹ though these too—'objets pectiniformes de bronze d'usage inconnu'—are regarded as enigmatic. All the Dutch examples, however, have socketted handles cast or rivetted on, or show the attachment for such. But they show similar widely spaced short teeth, sometimes almost worn away. Neither such short teeth nor such wear, would seem to be associated with weaving. Their date is thought to be post-Roman.² The presence of six such objects in a pot at Chalton, most differing slightly from the rest, suggests some sort of multiple tool. The site is agricultural; thus wool combing or carpentry, rather than pottery decoration or the marbling of paint or scoring of tiles or plaster suggests itself. Yet any attempt at explanation must take account also of their other feature, namely, their rarity, and it is this rarity which makes them difficult to interpret.³

A group of late Saxon brooches.—Miss Vera I. Evison, F.S.A., contributes the following note: A note in a recent *Antiquaries Journal*⁴ described a bronze mounting from Oxshott Wood, Surrey. The function of the object was unknown, the ornament considered to be zoomorphic and the Saffron Walden pendants were quoted as the best pieces comparable. However, it seems to be one of a number of late Saxon objects which have not so far received notice as a group.

The design is a swastika with knotted terminals, and a ring placed in an outer bend of each of the four interlacing arms suggests a zoomorphic origin. These rings, however, are exactly the same as the four placed in the corners of the central quadrangular field, and as they appear in wider parts of the arms they presumably perform there the same but inanimate function of space-fillers. Similar fill-up pellets may be seen on the Saffron Walden pendants. The central roundel was not necessarily intended as a vehicle for inlay for it is quite shallow, in fact just the same type of depression as occurs throughout the rest of the design on the face of the object. It can hardly have been intended to hold a stone, and if inlay was present it is more likely to have been something like enamel or niello.

There are at least five other related bronze discs, practically identical to each other in size and design, and this design, although very similar to that from Oxshott Wood, is rather more simple. The main difference is that the interlacing arms, instead of springing from behind the sides of the incurved square, spring from its corners as a continuation of the curves of its sides. The ribbing embellishment is missing, and so, too, are the pellets. One of these discs comes from Threxton, Norfolk⁵ (pl. xxvi, c), a second is possibly from the Leicester district⁶ (pl. xxvi, d), a third, from Kent, is in the keeping of the British Museum,⁷ and a fourth, slightly larger, from Icklingham, Suffolk, is in the Ashmolean Museum.⁸

A fifth example comes from Bottisham Lode, Cambs.⁹ (pl. xxvi, e) and this provides most information about the species. At the back there are the remaining stumps of projections for holding

¹ *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek in Nederland*, iv, ii, 31–32, figs. 11–12, pl. iv, 4.

² For an earlier partial analogue, see *Bull. Soc. Suisse de Préhistoire* (1952), 121, from Eschen.

³ Mr. G. C. Dunning, F.S.A., tells me that he has recently found a similar bronze object with three teeth and with a single rivet-hole at the other end among surface finds from inside the SW. area of the Saxon Shore-Fort at Richborough.

⁴ *Antiq. Journ.* xxxvi, 70–71, pl. viii.

⁵ C. R. Smith, *Coll. Ant.* iii, pl. xxxiv. 8; *V.C.H. Norfolk*, i, 347; *Norfolk Archaeology*, iv,

363 and 354, fig. 5. Castle Museum, Norwich.

⁶ Leicester Museum.

⁷ Reg. No. 1942, 10–8 17.

⁸ I am grateful to Mr. G. C. Dunning for giving me information on these last two examples.

⁹ *V.C.H. Cambs.* i, 322, no. 7, pl. xiii; *C.A.S.* xxix, 113; H. Shetelig, *Viking Antiquities in Gt. Britain and Ireland*, iv (1940), 69, fig. 42. The present whereabouts is here given as Ashmolean Museum, but it is in the possession of the Museum of Archaeology and Ethnology, Cambridge, no. 25, 607.

a spring and catch, and at one end, between the stumps, a groove has been worn by the passage of the pin. It is clear that it functioned as a brooch. The face shows the empty central roundel and hollows as on the other discs, but some of the hollows and grooves are filled to a flat surface with a black substance which has the appearance of being an inlay like niello.¹ Some of the other brooches may have been ornamented in this way. Colour and texture differences in the surface of the Threxton brooch make one wonder whether it is the remains of enamel which are visible in its crevices, the same suggestion has been brought forward in connexion with a bronze disc brooch of like size from Norway,² and an animal brooch from Felixstowe is said to show traces of red enamel.³

One further example has a rather different design. This is a bronze disc from Ixworth, Suffolk,⁴ with a triskele motif of possible Celtic ancestry, but with terminals of presumably vegetable origin (pl. xxvi, f). There is no doubt of its membership of the same family, however, for the size of the object and the technique of shallow casting are the same, as well as the clockwise movement of the arms of the design, and the fill-up pellets in the larger expanses of the field. At the back are the remains of projections for spring-holder and catch.⁵

All these are unassociated finds, but a very close parallel to the Bottisham Lode type of brooch occurred in the well-furnished Grave No. 968 at Birka, Sweden. Here a woman was wearing it in the middle of her chest between two tortoise brooches and above a trefoil brooch.⁶ Instead of the hollow central roundel of the English examples, the Birka brooch has a projecting hump, but is otherwise comparable in size and design. The grave may be dated to about the middle of the tenth century, but some of the objects in it are considerably earlier, such as the small silver pendant in the form of a woman, which belongs to the eighth or ninth century.⁷

The disc brooch at Birka was therefore made in the first half of the tenth century or earlier. In spite of its close resemblance in design to the English brooches, there is an essential difference in that it has the humped centre common among Swedish circular brooches,⁸ whereas the English ones are quite flat. In this way they accord in size, metal, and technique with other types of the late Saxon series of disc brooches such as those with the portrait of a backward-glancing animal.⁹

The Birka piece is a useful parallel to aid in the task of assessing the date and origin of the English brooches, for the motif of knotted interlace is a common one, and the disc-brooch form forever popular. Knotted interlace with angled bends occurs in manuscripts as early as the eighth-century Codex Aureus at Stockholm,¹⁰ and a similar cruciform pattern of knotted arms may be found in the Paris Gospel Book, Bibl. nat. lat. 281.¹¹ It has already been noted, however, that the interlace has a 'Jellinge' appearance, particularly as to the cross-hatching on the Oxshott Wood disc. Forerunners amongst insular jewellery are not to be found in the latest pagan brooches, but there is a series of late seventh-century gold pendants with interlace patterns which may have some connexion.¹² If the design was in fact zoomorphic in the first place, however,

¹ Dr. G. F. Claringbull has kindly tested this material and states that its identification is doubtful so far, but it is neither niello nor enamel. There is copper oxide (CuO) present.

² J. Petersen, *Vikingetidens Smykker* (1928), p. 123, fig. 131.

³ *V.C.H. Suffolk*, i, 348.

⁴ Moyses Hall Museum, Bury St. Edmunds, Suffolk; *V.C.H. Suffolk*, i, 336, where it is compared with a similar brooch in the British Museum.

⁵ I am very grateful to the Leicester Museum, Castle Museum, Norwich, Moyses Hall Museum, Bury St. Edmunds, and the Museum of Archaeology and Ethnology, Cambridge for permission to

publish photographs of these brooches. Visits to these museums were made possible by a grant from the Central Research Fund, University of London.

⁶ H. Arbman, *Birka I* (1940), Taf. 71.13.

⁷ I am indebted to Dr. W. Holmqvist for giving me his opinion on the date of this grave.

⁸ H. Arbman, *op. cit.*, Taf. 71.

⁹ J. Brøndsted, *Early English Ornament* (1924), 146.

¹⁰ *Ibid.*, fig. 92.

¹¹ *Ibid.*, fig. 93 panel in loop of Q.

¹² E. T. Leeds, *Early Anglo-Saxon Art and Archaeology* (1936), pl. xviii c, d, f, pl. xxxi.

it is perhaps possible to imagine an evolution from disc brooches with zoomorphic swastikas such as those from Gotland of the seventh–eighth centuries,¹ for the disposition of the animal heads would give a reasonable basis for regarding as eyes the pellets in the Oxshott Wood pattern. However, the milieu with which the design has greatest affinity is that of the Swedish disc brooches with a central device of square or triangle with incurved sides, and an outer zone of bands interlaced symmetrically.² Disc brooches of this period are far more scarce in Norway, but at Litland av Tou, Strand, Rog. was found a silver filigree brooch with a quadruple arrangement of snakes in asymmetrical interlace.³

The triskele brooch from Ixworth (pl. xxv1, f) might perhaps also be compared with certain of the zoomorphic Gotland brooches,⁴ but for its predecessors it is hardly necessary to look farther than insular Celtic work such as hanging bowl appliques. The terminals of the triskele are somewhat similar to the ivy-leaves of the Trewiddle style, and this unexpected combination of a swirling Celtic pattern with the essentially static ivy leaf motif does in fact occur elsewhere, on the Fetter Lane sword.⁵

During the ninth and tenth centuries close connexions are traceable in art motifs and jewellery techniques between England, Scandinavia, and the Continent, but it is difficult to establish the origin and course of the impulses responsible for their diffusion. It is true that most of the close parallels for these knotted disc brooches are to be found in Scandinavia, but there the persistence of the custom of furnishing the dead with personal possessions ensured the preservation of a much larger percentage of objects than in England. Nevertheless, it is to be remarked that in one of the rare cases of a furnished grave, at Saffron Walden, an object of this type is forthcoming. Considering that the English brooches are only accidental personal losses by individuals, they must surely represent a comparatively small fraction of the original output.

The reasons for ascribing the manufacture of these brooches to England⁶ are therefore the number found in this country whereas so far there seem to be none abroad, and also their strong similarity on all points except design to a well-known series of English brooches current at about the same time. This close connexion with the brooches with backward-glancing animals may mean that they are contemporary products of the same craftsmen, particularly as there seems to be no great divergence in the geographical distribution of the two types. This suggests that their manufacturing centre or centres must be placed within the Danelaw, probably in East Anglia. Connexions with Scandinavia would, of course, be particularly live in this part of the country. The Birka piece may be a copy of a mass-produced English article, the main series of which would then belong to a period before the middle of the tenth century. Some, at least, of the English animal brooches may reasonably be assigned to the ninth century,⁷ and perhaps this may be regarded as no more than a likely date also for the brooches discussed here.

A Samian potter's punch from Colchester. Mr. M. R. Hull, F.S.A., contributes the following: Some further remains have recently been found on the site of the Samian kiln found in 1933,⁸ and among a number of pieces of exceptional interest the most outstanding is a perfect example of one of the many punches, or stamps, used by the potters in making the negative of the pattern

¹ B. Nerman, 'Gravfunden på Gotland under tiden 550–800 E.K.', *Antikvarisk Tidskrift för Sverige*, 22, fig. 45.

² H. Arberman, *op. cit.*, Taf. 70, 2, 3, 4, 7, and Taf. 71, 5; *ibid.*, *Schweden und das Karolingische Reich* (1937), Taf. 51; etc.

³ J. Petersen, *op. cit.*, fig. 124.

⁴ B. Nerman, *op. cit.*, fig. 53.

⁵ B.M. *Guide to Anglo-Saxon Antiquities*, fig. 112.

⁶ Shetelig includes the Bottisham Lode brooch in his list of Viking antiquities in England, *loc. cit.*, and according to T. Lethbridge it is 'undoubtedly of Viking manufacture'; *C.A.S.* xxix, 113.

⁷ J. Brøndsted, *op. cit.*, 147.

⁸ The full report has been written for many years and awaits funds for publication; Preliminary accounts have appeared in *Germania*, xviii, 27 ff. (1934), and in the *Illustrated London News* (20 Jan. 1934).



b. Bronze head from Chalton (1)



d. Leicester district (?)

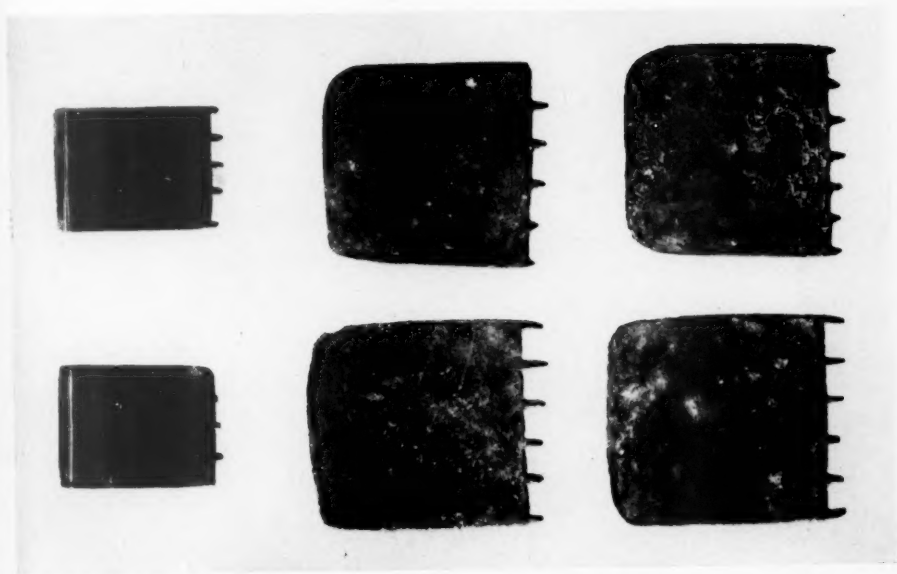
f. Ixworth, Suffolk
Late Saxon bronze disc brooches (1)

c. Threxton, Norfolk



e. Bottisham Lode, Cambs.

Late Saxon bronze disc brooches (1)



a. Bronze combs from Chalton (1)



a. Samian potter's hand-stamp, side views ($\frac{1}{1}$)



b. Flat view of stamp, and ware with same motif ($\frac{1}{1}$)

on the inside of the moulds from which the decorated bowls were made. Perhaps we may repeat that over 400 fragments of moulds were found in 1933, to which a number of important additions have recently been added. These belong to two distinct potters, which we have called A and B; wasters, but as yet no moulds, attest the presence of a third potter, C. While name-stamps are generously used here on other products, all our moulds and decorated fragments remain strictly anonymous, and the present punch is no exception.

It is, in general form, of mushroom-shape (pl. xxvii, *a*) the broad head (c. 2½ in.) is slightly umbonate to fit the interior curve of a bowl of form Drag. 37. It bears in strong relief the figure of a Triton blowing a conch, the figure being so disposed that it approximately fits a circular space (pl. xxvii, *b*, 1). The execution of the figure is typical of the Colchester potters, and should receive modern approval, having at times a fine disregard for detail and accuracy. The hands are disproportionate in size and the eye is a simple pellet. There is a faint indication of a belt at the waist, and numerous fins or flippers adorn the anguiform body, which bears a triple fish-tail. At the back there is a roughly cylindrical handle of ¾ in. diameter and 1½ in. long; it, and the curve where it expands to the head, are shaped by whittling the almost dry clay with a knife. The material is the finest clay used on the site, of very fine grain, very hard, and of light, red-buff colour.

No fragment of mould bears this figure, but at least three pieces of the actual decorated ware bear it (pl. xxvii *b*, 2, 3). All of these have the distinctive ovolo of Potter A, one has also his equally characteristic band of chevrons closing the bottom of the decorated space. The degree of relief in these positives varies according to how deeply the stamp was pressed into the mould, and this in turn can vary the dimensions from side to side of the positive figure.

Great interest attaches to the amount of shrinkage, which occurs thrice in the manufacture of decorated Samian ware. The stamp is impressed in the very soft mould, which is then fired and must shrink considerably in the process. How much this shrinkage was at Colchester we cannot yet know, because we have no fragment of mould bearing this particular impression. Soft clay was then forced into the hard-baked mould and allowed to dry to a leathery consistency. In this process it had to shrink sufficiently to pull itself clear of the sunken negative pattern. The positive cast was then dipped in the engobe and fired, thus completing a general shrinkage which should generally correspond (in sum of shrinkage) to that of the first operation. In this way the figure which finally appears as a positive on the decorated bowl has suffered two complete shrinkings, and in consequence is two degrees smaller in dimensions than the figure on the stamp used.

The percentage of shrinkage is of some interest, for though it may vary according to the clay used (and its humidity at the time of use), it should not vary beyond certain limits. This has a definite application, for it has been suspected, and may well prove true, that figures which for some reason appealed to the potter, were mechanically copied by taking impressions of them from a bowl of another potter, bought in the market. From such an impression a punch could be cast (in clay); both would have to be fired, and the resulting punch would be two shrinkages smaller than the positive figure which was copied. The argument that such piracy of types was practised rests on the observation that copied types do show progressive diminution in size, while preserving a suspicious degree of similarity amounting almost to identity.

Having now been able to study an original stamp I begin to doubt the theory, for the copied stamp would be in such shallow relief that it would be detected; on the other hand, on removal from its matrix it could, no doubt, be so trimmed up by hand, while still in a leathery state, as closely to resemble one originally cut by hand. With these few remarks we leave the matter to research, with the following observations:

The distance from the tip of the central digit of the upper hand to the tip of the central of the three fins on the belly is 52 mm. (obtained by slightly rolling the ruler over the bulge of the stamp). The same dimension on the two pieces of ware which preserve it is 46 mm. in each case.

The distance from the forehead to a point on the outer edge of the figure, 8 mm. below the last flipper on the left, is 51 mm. on the stamp and 41.5 and 42 mm. on the ware. The total shrinkage therefore varies from 11.54 to 18.63 per cent., with an average of 15.94 per cent. Since this results from two distinct firings we must halve it to obtain an approximate figure of 7.97 per cent. as an average shrinkage in firing.

Published references to objects of this sort are deplorably scanty. Great numbers should have been found on French sites, but in Déchelette's great work we have only the brief remark—'All the punches we have found are of clay, some are partially glazed. We know of 49 bearing the name of the mould-maker or of the master potter who employed him.'¹ A note giving the names adds that nearly all those of known provenance come from Lezoux. Hermet says he only recovered two from La Graufesenque, one for a semicircle, the other for a leaf, but he also illustrates one for making on ovolo by single impressions. The two shown are both drawn out behind into longish handles.²

The fullest account of these stamps will be found in Dr. Kuzsinsky's account of the Roman pottery quarter at Buda-Pesth-AQVINCVM.³ His figs. 156–230 illustrate a large number, also moulds from which they could be produced in numbers, a detail so far not recorded elsewhere. His figs. 176, 177, 188 show stamps with long handles like ours; others have the small finger-grips like two small examples in the British Museum which come from Gaul.

A further note on the Saxon urns from Ickwell Bury, Beds.—Mr. C. F. Tebbutt, F.S.A., contributes the following: In this *Journal*, xxxiv, 232, I referred in a note to two Saxon urns and one Belgic pedestal urn seen at Ickwell Bury, Bedfordshire, and believed to have been destroyed when that house was burnt in 1937. Dr. J. N. L. Myres, F.S.A., who described the two Saxon urns and their significance in the same *Journal* (p. 201), has informed me recently that all these vessels are to be found in the British Museum (pedestal urn 1937, 11–11, 2; Saxon urns 1937, 11–11, 8 and 9). They were given by Mr. Harvey, who stated that the Saxon urns came from Sandy, Beds. The pedestal urn may well have come from the same site, as many finds were made there during the building of the railway during last century. These are referred to in *Associated Architectural Societies Reports*, ii (1853), 426–32. Also in *P.S.A. Lond.*, 1st series, 11, 109–10 and 2nd series, 111, 378–80, and *Arch. Journ.* xxxix, 268–74.

I am indebted to the British Museum for the above information. They also tell me that the Bronze Age hoard is not in their possession.

Dr. J. N. L. Myres, F.S.A., adds the following note: The attribution of the two Saxon urns from Ickwell Bury to the Sandy cemetery is strengthened by the fact that an offprint of the article in *Associated Architectural Societies Report* (1853), referring to the discovery of Saxon cremation urns at Sandy was always kept with the urns at Ickwell Bury, and passed with them to the British Museum in 1937. The urns were apparently found near the railway bridge during the building of the Great Northern Railway about 1850. Other Saxon cremation urns are recorded from this site including a fine stamped *Buckelurne* without a foot now in the Cambridge Museum for Archaeology and Ethnology.

The corrected findspot for these urns makes it desirable to print a revised version of the distribution map of English *Buckelurnen* with feet (fig. 1). The opportunity has been taken to add one urn discovered since the map was first published, and two that were inadvertently omitted from it. The new discovery is a small urn from Harwell, Berks., shortly to be published in *Oxoniensia*: it is similar in size though not in decoration to the example from Osney, which is also

¹ *Les Vases céramiques ornés de la Gaule Romaine*, ii, 337.

² *La Graufesenque*, pl. 115, A, 4, 5, and p. 217.

³ B. Kuzsinsky, *Das grosse römische Töpferviertel in Aquincum* (Budapest Régiségei, xi, 1932).

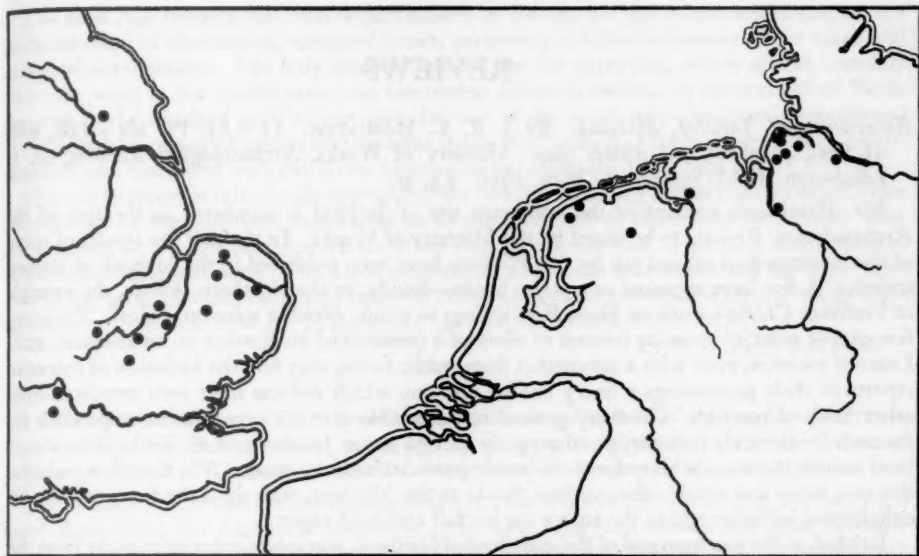


FIG. 1. Distribution of Saxon *Buckelurnen* with feet.

its nearest neighbour in location. The other two are the fine urn from Luton, Beds., in the Luton Museum,¹ and an unpublished example in the Northampton Museum from Aplin's sand-pit at Milton, Northants. These additions to the map confirm the pattern of distribution previously indicated, except that the Harwell urn, which does not look typologically early, carries the range of the type a few miles farther south-west beyond the Thames to the foot of the Berkshire downs.

Correction.—Miss Grace Simpson writes: At a time when archaeologists are learning to rely increasingly upon scientific aids, it is important that a new and even pedantic care should be exercised in the use of terms which may have a specific scientific connotation. Thus in a paper by myself entitled 'Metallic Black Slip Vases from Central Gaul', in *Antiq. Journ.* xxxvii (1957), 29-42, I should make it clear that I was using the term 'metallic' merely as descriptive of the appearance of the sherds in question, without reference to chemical composition. As Miss M. Bimson quite properly points out to me, no element is in fact present in Samian in its metallic state, and the appearance of the surface is not due to the presence of metal. I did not intend to imply that it was; but the moral is that the use of such terms as 'metallic' in a purely descriptive sense is strictly incompatible with scientific usage, and that we archaeologists must be more scrupulous in future.

¹ *Antiq. Journ.* viii (1928), pl. xxxvii, 1.

REVIEWS

Excavations at Jarlshof, Shetland. By J. R. C. HAMILTON. 11 x 8½. Pp. xiv + 228, with 91 figs., 40 plates, and master plan. Ministry of Works, Archaeological Reports, no. 1. Edinburgh: H.M. Stationery Office, 1956. £3. 3s.

Mr. Hamilton's account of the important site of Jarlshof is numbered as the first of the Archaeological Reports to be issued by the Ministry of Works. In the past the results of many of the investigations carried out by the Ministry have been published in the journals of learned societies. A few have appeared as separate books—locally, in the Northern Islands, the example of Professor Childe's work on Skara Brae springs to mind. Neither solution is ideal. There are few sites of sufficient popular interest to allow of a commercial publication on an adequate scale. Learned societies, even with a subvention from public funds, may find the inclusion of extensive reports in their proceedings a heavy burden and one which deflects their own resources from other fields of research. On every ground it is desirable that the organization responsible for research on the scale necessarily and properly carried out at Jarlshof and on similar sites should itself assume the responsibility for the scientific publication of the results. We therefore welcome this new series and would offer our best thanks to the Minister, who signs the foreword, for his enlightened initiative and to the author for his full and lucid report.

Jarlshof, at the southern end of the mainland of Shetland, was inhabited continuously from the Bronze Age to the seventeenth century A.D. The extensive series of settlements, with their middens intercalated with layers of blown sand, affords an invaluable sequence of the structures and of the material cultures which succeeded each other in the islands. The sequence was investigated over a long period, first by the proprietor, Mr. John Bruce, between 1897 and 1905, and then, between the wars, by the Ministry. Finally, from 1949 to 1952, it fell to the lot of Mr. Hamilton to conduct a careful series of excavations, designed to fill the lacunae left by the earlier work and to place the stratigraphical relations of the various phases on an unimpeachable basis. The task is now complete. We are provided with a factual account of the buildings and a clear description of the material culture associated with each phase. Not the least of the virtues of the report is this careful correlation of the structures and the artifacts, leading in some cases to a revision of earlier theories and a refinement of dating which will be of value over a wide field. As an example we may instance the careful analysis of the occurrence of Norse pottery in the middens, showing that the earlier phases of this occupation were without pottery and that it came into general use in the twelfth century.

One of the most fascinating sections deals with the sequence of Iron Age dwellings, starting with the broch, which was succeeded in turn by an aisled round house, a complex of wheel houses, and a passage house. These successive phases covered the first seven centuries of the Christian era. During this long period two immigrations are identified. The broch builders, with whose advent the phase opens, are shown as a small class, controlling an autochthonous majority, whose traditions again become predominant in the aisled round-house stage. The second wave of immigration, the people responsible for the wheel houses, had a more far-reaching effect, when they arrived about A.D. 200—'new or variant traditions are apparent in almost every sphere of their economy'. Wisely, in a formal report of this nature, Mr. Hamilton does not depart from his brief to discuss in detail the correlation of these events with the sequence in other areas, such as the Hebrides, or with the earliest written records concerning Scotland. It will, however, be clear to all scholars that his careful analysis of the material cultures constitutes an indispensable element in any assessment of such problems as the origin of the Picts.

The Iron Age remains had been in part eroded by the sea, but the Norse settlement, on the landward slope of the mound, remained intact, permitting a fuller evaluation of the social and ecological development. The only missing element was the graveyard, which almost certainly lay to the west, in the eroded area. An interesting section is devoted to the survival of Norse elements in the Shetland croft of our own day and of the recent past. Structural elements and furnishings, the names of which are recorded in the Norn dialect of the northern islands, can be identified and correlated with the Norse houses and the literature of the Saga age.

The whole report is full of such examples of the detailed recording and evaluation of information afforded by the systematic exploration on an adequate scale of this well-preserved site. The first appendix on the structural restoration of the Iron Age houses may be specially commended to all students of such problems. The site is preserved as a National Monument and the clear statement of the principles that have been followed in the work of conservation will be of the greatest assistance to those who have the good fortune to study the remains in the field.

C. A. RALEGH RADFORD

The Relics of St. Cuthbert. Studies by various authors collected and edited with an historical introduction. By C. F. BATTISCOMBE. 12½ × 9½. Pp. xv + 561 + pls. 58. Printed for the Dean and Chapter of Durham Cathedral at the University Press, Oxford, 1956. £10. 10s. 0d.

The various objects and vestments associated with the tomb of St. Cuthbert at Durham, and found there when the tomb was opened in 1827 have been well known and some carefully examined in the past. Nevertheless, it is most useful to have them re-examined and published in this most sumptuous, though physically extremely heavy, book. A volume of this kind provides a good opportunity for discussing the whole question of the contents of the tomb, and Col. Battiscombe's introduction provides a valuable setting to the detailed discussion of individual objects and problems. There is no doubt that what was found in the tomb was intimately connected with the saint and that the mortal remains of St. Cuthbert and St. Oswald were also found there.

There are three main strata of contents. First are those dating from the end of the seventh century; second the gifts made by Æthelstan; and third the objects placed in the tomb about the year 1104 at the solemn translation. It is important to remember that before 1104 the relics were a good deal more accessible. The present study consists of chapters on the various objects and textiles. By far the longest is Professor Kitzinger's most important examination of the wooden coffin which he demonstrates is certainly the *theca levis* in which St. Cuthbert's body was deposited in 698. His iconographical study of the subjects on this object is extremely full and his comments upon the types of Evangelist symbols in use in England at that time have an importance for all students of the relations between England and the Mediterranean in the seventh century. He provides also an important contribution to the history of the continental influences in Lindisfarne and Northumbria in his examination of the style. It is perhaps curious that he does not use in his argument the miniatures in the Durham MS. of Cassiodorus, MS. B. II. 30. In many ways they reflect the style of the coffin and are certainly very early.

Two studies by Mr. Bruce-Mitford and Mr. Raleigh Radford are devoted to the pectoral cross and the portable altar respectively. It will be remembered that Sir Thomas Kendrick dated the cross in the fifth century, suggesting an origin in Strathclyde. Bruce-Mitford, armed with new evidence, puts forward the date into the seventh century. Mr. Radford's article on the altar is particularly interesting in view of his reconstruction of the metal covering with the figure of St. Peter on it. Very considerable attention has been given to the woven textiles as well as to the more famous embroideries of the stole and maniple. In her discussion of the technique of the latter the late Mrs. Crowfoot publishes an account of a fragment of embroidery recently found in San Ambrogio at Milan, showing both technical and ornamental connexions with the St. Cuthbert

vestments. She leaves open the question as to whether the Milan piece is English or continental. The ornament is very near to the borders of a miniature in the life of St. Cuthbert, now Corpus Christi Cambridge MS. 183, presented by Æthelstan to Durham and made in England in the first thirty years of the tenth century.

Besides the studies devoted to objects found in the tomb a number of chapters discuss objects and matters relating to the saint. Attention is drawn here to the accounts of the small manuscript of St. John's gospel now at Stonyhurst. Professor Mynors has written of the manuscript and its history and brought new evidence concerning the history of the manuscript after the Dissolution, while Mr. Roger Powell describes the binding in considerable detail. The suggestion first put forward by van Regenmorter that the central panel of the upper cover represents Christ and the Four Evangelists is tendentious and should be received with caution. Mr. Christopher Hohler, fortified by a dizzy welter of sigla, has treated with enormous erudition the Durham services in honour of St. Cuthbert. This is a most valuable contribution to liturgical history, though it is very tough going.

It is impossible to discuss the many other articles which are all important. Let it suffice to say that the production is magnificent, and, like another great corporate effort, 'Everybody has won and all must have prizes'.

F. WORMALD

The Royal Commission on the Ancient Monuments of Scotland: Roxburghshire, 2 vols. 11½ × 8½. Pp. xxxii+vi+506, with 618 figures and 1 folding map. Edinburgh: H.M. Stationery Office, 1956. £5. 5s.

Like its counterparts in England and Wales, the Scottish Royal Commission on Ancient Monuments is modernizing itself, and has here for the first time devoted more than one volume to a single county. This increase is made necessary by the discretionary inclusion of monuments later than 1707 and by the meticulous record of earthworks of all kinds, after collation of the evidence on the ground and on maps with that of air-photographs. All the more important earthworks have been provided with plans of exquisite draughtsmanship (mostly by 'C.S.T.C.'): it is a pity that some of the value of this record should have been lost by reproduction to a wide variety of awkward scales. This failure to carry on the good work that last stage from the drawing-board to the blockmaker affects even the dated plans of the four major buildings: Kelso Abbey and Melrose Abbey (both 37 ft. to 1 in.), Jedburgh Abbey (44 ft. to 1 in.) and Hermitage Castle (40 ft. to 1 in.); surely all these could have been to the accepted scale of the last without added difficulty or expense?

Of the illustrations slightly more than half (312) are in half-tone, and mostly of a high standard. Some of them, notably such air-photographs as Figs. 117, 192, and 519, have an aesthetic value besides vividly suggesting the unique atmosphere of the Lowlands, so surprisingly different from that of northern England. This inclusion of landscape, albeit to show cultivation terraces, crop-marks, or monuments in bird's-eye view, gives these volumes an actuality seldom attained by such official catalogues, and places man's productions within the essential framework of nature. The numbering of the blocks, line and half-tone, in a single series, though it adds to the publisher's difficulties, is a boon to the reader.

In the text and in the extended introduction references to historical sources and archaeological publications are given on an ample scale and greatly increase the usefulness of the inventory, which is thus removed from the dangerous category of unsupported *ex cathedra* statement by a group of experts. It is frankly admitted that nothing is known of the date of many of the antiquities recorded, and this should act as a spur to investigators. Archaeological investigation on a major scale is indeed particularly demanded by one site, that of the lost burgh of Roxburgh,

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a major county town virtually abandoned by c. 1500. Probably no place in the whole of Great Britain better deserves total excavation.

Valuable appendixes deal with the Roman Dere Street, two other ancient roads, that mysterious earthwork the Catrail, and the 'pele' (house or tower) as an architectural type, while the introduction covers, besides the main periods and types of monument, bridges, cultivation terraces, and caves. A most surprising revelation is the complete absence of a March Dyke defining any part of the Border; possibly an indication of the contempt in which this always political line was held by the sturdy inhabitants of both countries.

In a short review it is impossible to do justice to the wealth of information on all periods from Bronze Age finds down to Georgian town-planning at Newcastle-on-Tyne (1793-1800). For sheer beauty the architecture and sculpture of Melrose Abbey stand out, and here meet with the detailed treatment they so richly merit. The account of the successive builds would have been more convincing (and indeed could have been amended in detail) had it been accompanied by profiles of the bases and mouldings and by elevations showing jointing and 'race-bonds', which prove that the dated hatching on the plan is not quite accurate. It might too have been well to emphasize the unusual stylistic sequence of fourteenth-century English Perpendicular at the east end followed by *later* curvilinear work of Franco-Scottish style continuing through the fifteenth and into the sixteenth century, and even (it would seem) inserting 'Decorated' traceried into what had been Perpendicular windows of the eastern chapels.

In laying down this remarkable contribution to knowledge the present reviewer's one regret is for the anonymity which veils its gifted authors.

JOHN H. HARVEY

Contributions to Prehistoric Archaeology offered to Professor V. Gordon Childe in honour of his sixty-fifth birthday. By twenty-seven authors. Ed. by GRAHAME CLARK, assisted by KENNETH OAKLEY and STUART PIGGOTT. 10 x 7½. Pp. vii + 310; 30 pls., 61 figs. and table. Published by the Prehistoric Society, 1956. Cloth, 42s. Paper, 28s.

The Prehistoric Society has marked Professor Childe's sixty-fifth birthday by devoting to his honour a volume of its *Proceedings*, a bound edition of which is reviewed here. Authors from Europe and the United States have contributed articles by invitation. Miss I. F. Smith has made a bibliography.

Childe's first field was the Aegean, and Miss Sanders's scholarship in 'The Antiquity of the One-edged Bronze Knife . . .' and Brea's skill as an excavator in 'A Bronze Age House at Poliokhni (Lemnos)' must give him great enjoyment; and no less Hencken's interesting note on 'A Western Razor in Sicily'.

The Danube in Prehistory established Childe's reputation. Sulimirski's stimulating "'Thuringian" Amphorae' and Banner's invaluable 'Research on the Hungarian Bronze Age since 1936 . . .' pay tribute to his influence. A contribution from Bryusov ('Neolithic Dwellings in . . . the U.S.S.R.') reminds one how Childe has interpreted Soviet prehistory to the West.

Becker's article on 'Coarse Beakers with "Short-Wave Moulding"' recalls Childe's attention to the early Scandinavian sequence, and articles by Clark ('. . . Industries of Sauveterrian affinities from Britain'), Piggott ('Windmill Hill—East or West?'), O'Riordan ('A Burial with Faience Beads at Tara'), Radford ('Contributions to a Study of the Belgae') and Stevenson ('Pins and the Chronology of Brochs') show, in distinguished fashion, insight and wide allusion, such as Childe has brought to British and Irish archaeology. Crawford's essay on 'The Technique of the Boyne Carvings' gives characteristic pleasure.

With '. . . Study of "The Problem of Pile-Dwellings"' and 'Prehistoric Social Groups in North Norway' Pittioni testifies to Childe's interest in early habitations, and Gjessing to that

in sociological questions; while Oakley in a review of 'Fire as Palaeolithic Tool and Weapon' achieves Childe's own manner of movingly evoking simple processes which have fashioned human life.

Childe has taught the European Upper Palaeolithic and Early Iron Age enthusiastically, in lecture and seminar; here these periods are powerfully represented by Miss Garrod ('Palaeolithic Spear-Throwers'), Pericot ('The Micro-Burin in the Spanish Levant'), and Zeuner ('Loess and Palaeolithic Chronology'), and by Clarke and Hawkes ('An Iron Anthropoid Sword . . . with Related Continental and British Weapons'), Lantier ('An Italo-Celtic Helmet'), de Navarro ('A Doctor's Grave of the Middle La Tène Period from Bavaria'), and Sprockhoff ('Central European Urnfield Culture and Celtic La Tène . . .'). Only Breuil's interesting 'Note on a Micoquian Tool from a Raised Beach in Morbihan' is a little far from Childe's normal range.

Alone, the space given to Near Eastern archaeology, although filled by distinguished notes from Braidwood and Helbaek on 'The Earliest Village Materials of Syro-Cilicia' and 'Ancient Egyptian Wheats', seems too slight to honour the author of many masterly reviews and papers and of *New Light on the Most Ancient East*.

HUMPHREY CASE

The Conservation of Antiquities and Works of Art: Treatment, Repair, and Restoration. By H. J. PLENDERLEITH. 9½ × 6½. Pp. xv + 373. London: Oxford University Press, 1956. 63s.

Dr. Plenderleith's earlier work on the preservation of antiquities was published by the Museums Association in 1934. He dealt in concise and practical terms with the techniques of preservation practised in the Laboratory of the British Museum. Since that valuable handbook was published much more has been learned and applied in the art of conservation, and new processes have been worked out. Dr. Plenderleith's new and authoritative book embodies the up-to-date methods now used at the British Museum.

Although based on sound scientific principles, the book is not written for scientists, or solely for museum curators, but, as the author states, he has, on the contrary, made a conscious effort to write for the non-scientific person, so that the material presented will be of service to as wide a range of readers as possible.

The book is written in a succinct, easy to read, and interesting style, admirably produced and illustrated. It contains many striking examples of what has been achieved by proper treatment. It is written, as the author says in the Preface, for the collector, the archaeologist, and the museum curator, and as a workshop guide for the technician. It ought admirably to fulfil this purpose, provided those making use of the information do so with care and discretion and make appropriate trials before applying them to delicate or valuable objects. Success in the conservation of antiquities and works of art can only be achieved by the exercise of common sense and sound judgement, experience, and a knowledge of a variety of techniques.

Having considered the subject of environment, a matter of paramount importance, and the causes of damage to ancient objects and works of art, the author deals with the conservation of materials in three categories. Firstly, organic materials, including animal skin and skin products, papyrus, parchment and paper, textiles, wood, bone, and ivory; secondly, metals, including gold, electrum, silver, copper and its alloys, lead, tin and pewter, iron and steel; and thirdly, siliceous and related materials, including stone, ceramics, and glass.

Dr. Plenderleith writes with such authority, backed up by many years of trial and experience, that it is not easy to make detailed criticism. The layman may be somewhat confused by the welter of comparatively new materials now used, synthetic resins, for example, and their solvents, and perhaps a little more enlightenment on their individual characteristics, their relative merits, and why they are chosen for a particular job, would have helped. The author might also, with ad-

vantage, have emphasized the great importance of keeping precise records of the particular treatment applied, since this would help in diagnosing any defects that might develop subsequently, especially as experience with some of these new materials has been so short. Although this recording is already practised at the British Museum, it might quite well be overlooked in less-well-organized laboratories. Only by keeping such records of treatment can first-hand experience be accumulated, and the best methods of preservation evolved.

As the book is also addressed to archaeologists, there could perhaps have been more guidance on the handling and care of newly excavated objects in the field, and on their packing and storage before transfer to the laboratory. How often is it that valuable archaeological material has been lost through lack of such care and attention, one might say ignorance. How often have objects been parcelled up, probably while still damp, and left in packing cases for months and even years only to rot away. It may be that this important aspect of conservation could best be dealt with in a separate field-book for excavators, and one can only hope that it will not be long before such a companion work is forthcoming.

One minor technical point concerns impregnation. It has been found that partial immersion of an object or its gradual immersion is often preferable to complete immersion as described on pp. 128 and 302. Molten wax, for example, is absorbed by capillarity, and if the object is partially immersed, rather than completely immersed, the air can escape more easily and the impregnation can be more thorough. In the desiccator method described on p. 304 experience has also shown that it may be better to evacuate the air from the object before running in the impregnating liquid rather than to immerse the object in the impregnating liquid and then extract the air as suggested.

The book contains a number of valuable technical appendices.

N. DAVEY

Persepolis: I: Structures, reliefs, inscriptions. By ERICH F. SCHMIDT. 16 × 12. Pp. xxix + 297 + pls. 205. Chicago: The University of Chicago Press. \$65.00.

When the first volume of a work appears, publishing the excavations at one of the great capitals of the ancient world, we rightly hail it as a major event. When the surviving ruins there are still today impressive, and the excavators are the Oriental Institute of Chicago, we look forward eagerly to a great book; nor are we destined to be disappointed. The present volume, even if long awaited, certainly brings the first fruits of a most important harvest, from which we may now start to learn something systematically about the arts, architecture, and court life of the mighty Achaemenid Kings. True, we have not gained much new information about their administration: the more important of the palace archives, if they have not perished, have at least not yet been found. Those tablets which have been recovered are of minor interest.

The present writer has reviewed this volume at considerably greater length in *Iraq*, xix (Spring 1956), where some detailed discussions of its shortcomings and omissions will be found. The points criticized there are the lack of any account of previous work done by predecessors at this famous site, the absence of reference in the sections on sculpture to the many important fragments of Persepolitan sculptures now to be found in the greater museums of Europe and America, certain technical shortcomings in the otherwise impressive photographs, and the grave doubts which surround some of the author's identifications of the groups of tributary nations represented in the Apadana. All this cannot well be repeated here.

We may here instead single out for praise the contribution to our knowledge which is represented by the meticulous and beautiful architectural drawings and full descriptions accompanying them. Thanks to this work, we can now study in some detail how the Achaemenid style of architecture emerged from the pre-Achaemenid monuments of Cyrus, how the Achaemenid architectural style was fused into a monumental whole from combining Assyrian, Urartian, Elamite, Median, and Egyptian elements; how that style was preserved unchanged by Darius's

successors, like their Empire which it served; and how it ended abruptly when that Empire collapsed, when the soldiers of Alexander burnt Persepolis, but failed to obliterate it.

R. D. BARNETT

Excavations at Gözlı Kule, Tarsus, from the Neolithic through the Bronze Age. By HETTY GOLDMAN. Vol. II. 11½ × 8½. 1. Text, Pp. x+373. 2. Plates 460+26 plans. Princeton, New Jersey: Princeton University Press; London: Oxford University Press, 1956. £14. 8s.

This is the final report of the American discoveries in the prehistoric levels of the mound of Tarsus in Cilicia.

Tarsus lies about 30 km. to the east of Mersin, the only other major site excavated in Cilicia. The combined results of these two excavations now allow one to follow the development of civilization in the Cilician plain from the Neolithic period to the end of the Bronze Age. It is particularly fortunate that the materials from these two sites supplement each other. Whereas Tarsus is the key-site for the Bronze Age, Mersin preserves a unique sequence of successive Neolithic and Chalcolithic cultures.

One of the most interesting results of the Tarsus excavations is the discovery of Chalcolithic cultures which have little in common with those of Mersin. They show a much closer dependence on the North Syrian and Mesopotamian painted pottery than Mersin, and there can now be no doubt that Tarsus represents the typical Cilician Chalcolithic. Mersin, on the other hand, has yielded many cultures which show closer affinities to others of this period in the Konya plain on the south Anatolian plateau.

The change from Late Chalcolithic to Early Bronze Age is unfortunately still obscure at either site and the appearance of West Anatolian pattern-burnished wares at Tarsus, though unstratified, complicates the issue.

From the second phase of the Early Bronze Age onward, Tarsus has preserved an almost complete record covering the whole of the rest of the Bronze Age, in about twenty-eight successive building levels, extending over the period between c. 2750 and 1100 B.C.

Fascinating as these discoveries are, the arrangement of the material leaves much to be desired. Most readers will find the summary in Chapter xvi all too short. They may be content simply to read that, and Chapter II on chronology. The rest of the book is devoted to chapters on building-levels (unnumbered and described by depth), pottery, stone, metal, etc.

No attempt at synthesis is made, no diagrams, tables, or reconstruction alleviate the dullness of the text, overburdened by excessive detail, of no interest except to the specialist, who in any case would prefer to see the material (in the Adana Museum) at first hand, rather than read through the meticulously laborious catalogues.

Pottery subdivisions run riot in the descriptions of the E.B. I and II material. Not less than sixteen and twenty-five classes of pottery are recorded for these two periods respectively. Classes of pottery based on two fragments (p. 105, 'stone-tempered painted ware,' 'chaff-faced painted ware') become ridiculous. Scales in the photographs, many of which are too small, are often absent or unreadable. Bronzes are only photographed, not drawn, and there are therefore no sections showing midribs and other distinctive features.

Far too much prominence is given to relatively unimportant objects of stone, bone, and clay (figs. 409-22, 437, 439-46), whereas such unique finds as the wooden knob (fig. 455), the crystal statuette (fig. 456), and the mould for making jewellery (fig. 436, ii) should have been more adequately published.

The pottery and the seal impressions, on the other hand, are beautifully drawn. Many of the plans show inferior draughtsmanship (e.g. plans 1-3, 21, and 26) and many of the photographs are poorly reproduced.

Here then is a valuable contribution to Anatolian archaeology, but its price is out of all proportion to its value. It is hard to believe that, in cutting out all but the essential, the production cost could not have been considerably reduced.

JAMES MELLAART

Le sanctuaire d'Apollon Pythéen à Argos. Par W. VOLLGRAFF. 11 × 9. Pp. 125. Paris: Librairie Philosophique J. Vrin, 1956.

This is the first volume of a series of Peloponnesian studies to be published by the French School at Athens. M. Vollgraff makes a detailed and well-illustrated study of the remains of buildings on the aspis or second Acropolis of Argos, which were excavated between 1902 and 1906. He starts with the temple of the Pythian Apollo, from which are preserved architectural and other remains from the seventh to the fourth century. An important inscription, probably to be dated 350–340 B.C., describing the restoration of the sanctuary is published with full commentary in an appendix. The cult seems to have been imported from Delphi at latest in the early eighth century and to have spread from Argos to Asine and Epidauros ('Barnett' on pp. 31 f. should be 'Barrett'). The oracular building has also been found and apparently contained the omphalos of Earth; it is suggested that this reproduces a very early arrangement at Delphi when the oracle of Apollo functioned outside his temple and in the sanctuary of Earth (this might have some bearing on the dating of Homer, *Il.* ix. 405; *Od.* viii. 79). Argos also had an oracular well which functioned from the eighth century. The excavations also revealed the temple of Athena Oxyderkes. This cult seems to have been borrowed from Epidauros and the temple included the worship of other deities particularly connected with Epidauros: M. Vollgraff identifies a statuette with the larger lady from Herculaneum, whom he regards as Aphrodite Melichia of Epidauros. The tholos is thought on good grounds to have been dedicated to Leto. The book concludes with a description of the remains of two Christian churches of the fifth and tenth century.

T. B. L. WEBSTER

Ancient Mycenae. The Capital City of Agamemnon. By GEORGE E. MYLONAS. 9½ × 6. Pp. xx + 202 + figs. 87. London: Routledge & Kegan Paul, 1957. 45s.

The occasion for this book was the discovery in 1951 of a new Grave Circle outside the citadel of Mycenae, and its excavation in the succeeding three years which the author helped to direct. A great part is naturally devoted to Grave Circle B, as it is now called, and although this is only a preliminary account of the excavation it does present a fairly detailed description of the tombs and the most important finds together with a brief appreciation of their date and significance. Unlike Grave Circle A, which Schliemann dug, the new Circle lay outside the walls and many of its graves are earlier. The shaft-graves contain offerings analogous to Schliemann's finds, perhaps less rich in bulk and quality, but with a number of outstanding pieces; and one of the graves which contains a built tomb closely resembling and antedating the well-known tombs of Ras Shamra is of particular importance. Naturally final judgement on this and other problems must await the full publication of the finds.

The earlier part summarizes what is already known or surmised about the archaeology of Mycenae, using the new evidence of the British post-war excavations, discoveries made in the course of restoration work (a mixed blessing on this site, but conducted with infinitely more discretion than in many other Mediterranean countries), and the comparative material afforded by the excavations at Pylos. The mythological background is discussed and, with the credulity which all archaeologists indulge in dealing with the history of their own sites, sense is sought from the tangle of myth, and the 'Treasury of Atreus' emerges as perhaps the tomb of Atreus himself. Digressions deal with the continuity of funeral practice and architecture from the Middle to Late

Bronze Age, and the significance of the Late Mycenaean figurines found in children's graves. The illustrations, fine half-tones, are excellent.

JOHN BOARDMAN

The Aegean and the Near East. Studies presented to Hetty Goldman. Edited by SAUL S. WEINBERG. 11 x 8½. Pp. xvi + 322. Locust Valley, New York, J. J. Augustin, 1956. \$10.00.

This handsome volume, presented as a tribute to Professor Hetty Goldman, the distinguished American archaeologist, on her 75th birthday, contains, besides a selected bibliography of her writings, twenty-two articles by American and other scholars. The central theme is provided by the relations between the Aegean and the Near East at all periods, a field in which Professor Goldman herself has made some major contributions by her excavations at Eutresis in Greece and even more so by those at Tarsus in Cilicia.

It comes therefore as something of a surprise to find that, but for two articles, both of which deal with the discoveries at Alaca Höyük, the Anatolian Bronze Age is not represented. Nor, with the exception of an excellent article by M. J. Mellink, is any field-archaeologist now active in Anatolia represented among the contributors. In view of the importance of Professor Goldman's work at Tarsus and the numerous new discoveries, which are providing a wider setting for an evaluation of the achievements of the Cilician Bronze Age, this omission might well have been remedied. On the other hand, several articles on the Anatolian Iron Age, in Cilicia, Urartu, south-eastern Anatolia, and Syria form a well-balanced counterpart to the Aegean component dealing with Mycenaean and later Greek cultures.

As so often with 'Festschrift' articles, the quality of some of these appears to fall slightly below the standard normally required by scientific journals. In two cases the contributions exemplify the doubtful advantage of introducing into archaeological literature a terminology borrowed from other disciplines. They abound in such expressions as 'communication entities', 'trait complexes', 'levels of abstraction', 'cultural cross-fertilization', and (last but not least), 'a highly personalised fabric of hunches', which not only obscure the argument but, in the absence of a glossary, make the sense almost unintelligible. It has been maintained in the past that 'nothing which cannot be said in simple language is worth saying'. One's 'personal hunch' is that such articles confirm this.

JAMES MELLAART

A Hittite cemetery at Gordion. By MACHTELD J. MELLINK. 10½ x 8½. Pp. xi + 60 + pls. 30. Philadelphia: The University Museum, University of Pennsylvania, 1956.

We have here a careful and detailed description of some two-score graves found in the pre-Phrygian strata of Gordion. They were poor graves and in many cases disturbed by the later occupants or users of the site, but from this rather scanty material the author has extracted all the scientific information possible, other than what may be got from the study of the bones.

That the three types of burial—plain inhumation, cist-graves, and *pithos* burials—form an historical sequence, though with considerable overlapping, is highly probable, and the inclusive date for the cemetery as a whole, nineteenth to sixteenth centuries, which the author gives as 'a provisional guess' is well supported by the many analogies which he cites. In calling his 'Middle Anatolian' graves 'Hittite' Mr. Mellink might indeed be thought to be treading on dangerous ground, but he insists that the term is not used either in the linguistic or in the political sense but is justified by the archaeological continuity of 2nd-millennium Anatolia. With this I, for one, absolutely agree; actually where I am charged by Mr. Mellink with calling the Alaca Höyük kings 'Hittite' on political grounds I had expressly said that the main argument was cultural continuity. Beycesultan and Troy show that the comprehensive term 'Anatolian' may be inept, what holds good for central Anatolia not applying to the western areas; where

then culture does seem to be tolerably uniform let us by all means adopt a general name for that archaeological province; and here 'Hittite' would appear to be inevitable.

LEONARD WOOLLEY

The Scythians. By TAMARA TALBOT RICE. 8×5½. Pp. 256, with 62 plates and 70 figs. London: Thames & Hudson, 1957. 21s.

This volume belongs to the new series 'Ancient Peoples and Places', which is appearing under the general editorship of Dr. Glyn Daniel. It provides a clear account of what is known about this nomadic people of the south Russian steppe, who perfected a most attractive style of animal ornament in the last millennium before Christ.

Historically the Scythians began to affect the history of the Near East in the eighth century. Two centuries later they were the dominant power in the steppe, a position which they retained for some centuries. Both in their way of life and their art the Scythians had much in common with the contemporary peoples of the Siberian and Central Asian steppes; Mrs. Talbot Rice has rightly included the latter in her survey, though the historian might reasonably argue that this is an extension of the normal usage.

Scythian art has long been known from the excavations in South Russia and the collections in the Russian Museums. The vigorous animal style, which in its pure form is characterized by a purity of line and economy of detail, draws much on the art of the Near East. Later it was influenced by Greek models, from the colonies on the Black Sea coast, which developed specialized products for the Scythian market. Recently our appreciation of the achievements of these nomads of the steppes has been enriched by the exploration of the frozen barrows at Pazirik and other Siberian sites, where conditions have preserved many of the organic remains, such as the felt hangings, the leatherwork, and even the tattooed designs on the dead bodies. All these objects are admirably described and illustrated in this book, drawing on the most modern sources, which are often inaccessible and in languages not widely read.

The treatment of the settlements is far more summary than that of the objects. This is regrettable as Russian archaeologists have recently devoted attention to these sites and accounts of them are available. In particular we should have welcomed a fuller description of the great settlement at Kamenskoe on the Dnieper, which covers an area of five square miles. A settlement on this scale can hardly be dismissed as a 'townlet'. It rather suggests a centre for periodic meetings such as we find among other nomadic peoples (e.g. the Bulgarian centre at Pliska in the Balkans). The structural picture of the tombs is also less clear than could be desired. In particular the description of Kostromskaya (p. 109) does not bear out the plan and section. On the maps it would have been an advantage to distinguish ancient settlements from modern towns; Panticapaeum was on the Straits of Kerch, not at the mouth of the Danube. These are minor points and need not detract from our appreciation of the very clear account of Scythian art, which will fill a long-felt need. This art is important not only for its own sake, but for its influence on the industrial production of the Migration period, during which it affected west European taste.

C. A. RALEGH RADFORD

A History of the Ancient Southwest. By H. S. GLADWIN. 10¼×7¼. Pp. xx+383. Portland, Maine: The Bond Wheelwright Co., 1957. \$8.50.

The American Southwest, the home of the Pueblo Indians, with its centre in Arizona and New Mexico, has long attracted the archaeologist, and has been the subject of a host of admirable studies and publications. As work has continued, it has become increasingly difficult to see the wood for the trees, and in this book Mr. Gladwin has come to the rescue.

Gladwin became an archaeologist by a lucky chance when he retired from quite a different occupation. He brought with him a flair for the subject and an exceptionally lively mind. He

founded a research institute in the Southwest, and with his professional associates made notable contributions to knowledge. He has always enjoyed trailing his coat, and this book shows that he has not tired of the process.

Briefly, he has brought the scattered threads together and made a coherent and fascinating story, explaining the chronology and distribution of the archaeological remains in terms of movements of peoples. In particular, he ascribes the puzzling abandonment of so many prominent sites in the eleventh and following centuries to pressure by the nomadic Athabascan tribes, rejecting out of hand the alternative theories of epidemics and drought.

At this distance from the Southwest it is hard to appraise the validity of Gladwin's conclusions, but I am prepared to hazard a guess that he will raise a nest of specialist hornets in his own country. Even here, most of us will deny the existence of Eoliths and lower Palaeolithic hand-axes in Texas, and I suspect that some of the evidence from the period with which most of the book deals, A.D. 200 to the present, has been treated in a somewhat cavalier fashion. Nevertheless, he has produced a clear reconstruction of events in the light of our present knowledge, and whether we regard it as convincing in the main, as I do, or as merely plausible, we all owe him a debt of gratitude.

The book is beautifully produced and illustrated, and contains a useful bibliography.

G. H. S. BUSHNELL

Peru. By G. H. S. BUSHNELL. *Ancient Peoples and Places*, ed. by GLYN DANIEL, vol. 1, 8½ × 6. Pp. 207 + 71 pls. London: Thames & Hudson, 1956. 21s.

This volume inaugurates a new series intended, as the Editor says in his Preface, to meet the need for 'small books which take a limited area or a single people and set forth the current state of knowledge about it in a way attractive to the non-specialist archaeologist as well as the ordinary interested reader'. This far-from-easy dual assignment is well covered by Dr. Bushnell. In skilfully compressed outline, he gives a survey of the central Andean cultures, using the scheme agreed upon by a conference of specialists in 1947: Early Hunters (now dated tentatively between 7000 and 3000 B.C.), Early Farmers (from about 2500 B.C.), Early Formative or Cultist, Later Formative or Experimenter, Classic (Bennett's Mastercraftsman), Expansionist, City Builder, and Imperialist Periods. In recent years our knowledge has been substantially amplified; notably by the application to the area of radiocarbon dating, so far with somewhat disconcerting results, and by important excavations such as those of the Virú Valley and of Huari; they and others are here usefully brought into perspective.

A notable feature of the book is the impressive series of photographs, many with unusually effective lighting. They show scenery, architecture, pottery, textiles, and work in stone and metal. Dr. Bushnell has had the advantage of being able to draw upon the fine private collection of Señor Rafael Larco Hoyle for illustrations of pottery of early types not otherwise available. In view of the recent publication of Bushnell and Digby's *Ancient American Pottery*, some of the later pots could perhaps have been spared to make room for more examples of craftsmanship in other media, particularly textiles. But of course in Peru as elsewhere pottery is the 'type fossil'.

If succeeding volumes maintain the high standard set by this one, the success of the series should be assured.

BEATRICE BLACKWOOD

Préhistoire de l'Afrique du Nord, Essai de Chronologie. By LIONEL BALOUT. 10½ × 8½. Pp. vii + 544 + figs. 29 + pls. 72 + unnumbered tables 38. Paris: for the Gouvernement Général de l'Algérie, Direction de l'Intérieur et des Beaux-Arts, Service des Antiquités by Arts et Métiers Graphiques, 1955. n.p.

In an authoritative summary, critique, and progress report of Palaeolithic, Mesolithic, and

Neolithic archaeology in Tunisia, Algeria, and Morocco Balout pursues evidence for chronology of industries, concentrating on sites which contribute positively to defining character, distribution, or relative age. He skirts the Sahara and Libya and dwells less on prehistoric art and Neolithic than the rest. The first third evaluates geological, botanical, and palaeontological data. Ultimate reliance upon marine strandline sequences poses difficulties. The only major horizons repeatedly linked to these are Lower Palaeolithic of Atlantic Morocco and Aterian along the Mediterranean. Sequences for the two areas remain independent units, having disparate marine molluscan series and also red earths containing dissimilar archaeology. Balout hopes for a Saharan solution common to both regions. The last two-thirds describes successive industries and representative sites. Here is up-to-date information, including current evidence for developmental and regional facies, on typology and sequence, with historical reviews of research on each.

Salient factors include: (1) the African, not European, character of a Lower Palaeolithic strong in pebble tools and cleavers; (2) the author's necessary preoccupation with the still obscure Aterian at the expense, however, of purely Levalloiso-Mousterian traces which latter he deliberately underplays, arguing that they are insufficiently established stratigraphically, despite still incontrovertible representation at Gafsa (Tunisia), Retaimia (Algeria), Kifan bel-Ghomari, and perhaps Taforalt (Morocco), excluding surface sites; and (3) Iberomaurusian being stratigraphically at least partly pre-Capsian and typologically more variable in time and space than once thought.

While all illustrations are excellent, and photographs provide generalized typology clearly, they omit interesting detail on small irregular Lower Palaeolithic flake-tools at Sidi Zin (Tunisia), Moroccan Aterian specializations, and Iberomaurusian variants. Even Frenchmen may have hard sledding in this welter of fragmentary evidence culled from over seventy years' scattered literature. Nevertheless, this should prove the most useful single compilation on the area and period for many years to come. The frankly selective bibliography has over 1,000 items, favours recent work, and omits the protohistoric.

BRUCE HOWE

Excavations at Soba. By P. L. SHINNIE, F.S.A., with a section on the glass by D. B. HARDEN, Ph.D., F.S.A. Sudan Antiquities Service: Occasional Papers no. 3. $7\frac{1}{2} \times 9\frac{3}{4}$. Pp. 84, with 30 plates, 47 figures, and a map. Khartoum, 1955. PT. 50 or 10s.

The site of Soba lies on the right bank of the Blue Nile about fourteen miles south-east of Khartoum. The town was in existence in the Meroitic period, on a still earlier habitation site, but in medieval times it had developed into a large and prosperous city, the capital of the Christian kingdom of Alwah. Contemporary writers refer to it with admiration, but today the remains consist of a hundred or so mounds scattered over an area of a square mile. Such a site offers little material reward to the archaeologist, and although it had often been scratched over, Mr. Shinnie's were the first scientific excavations to be undertaken there; they were confined to two selected mounds and the site of a church. It is interesting to note that modern methods and tools were used, very different from those which were for long traditional in the Nile valley and notorious in parts of the Near East. The excavations are fully described in the paper before us and the drawings of the pottery and small finds are excellent. It is not Mr. Shinnie's fault that the results add little to our existing knowledge; he was unable in the circumstances of the time to do more.

F. ADDISON

Prehistoric Man in Denmark: A Study in Physical Anthropology. By KURT BRÖSTE, in collaboration with J. B. JORGENSEN, C. J. BECKER, and J. BRØNDSTED. $13\frac{1}{2} \times 9\frac{1}{4}$. Pp. 600. Vol. I-II: Stone and Bronze Ages. Copenhagen: Munksgaard, 1956. Dan. cr. 230.

These two volumes on the physical anthropology of Prehistoric Denmark deal exhaustively

with all the available human skeletal material of the Mesolithic, Neolithic, and Bronze Ages in that country. (A third volume on the Iron Age, including the Viking period, is in preparation.)

The planning of this ambitious work began in 1938, and was carried out mainly after 1942 by the late Dr. Kurt Bröste. Its outstanding feature is the thoroughness with which the material is described and illustrated. Photographs of some 270 skulls are reproduced, together with cranio-grams and 43 pages of metrical data. Limb-bones, extremities, and pelves are also described and illustrated, group by group, with metrical data in 22 tables.

All possible attention has been paid to the problem of the dating of the remains described, and a clear distinction is made between specimens found by excavation, inspection, and chance. The first volume includes an archaeological introduction by Dr. C. J. Becker, and it is evident throughout that the work owes much to continual collaboration between archaeology and anthropology, inspired in large measure by Dr. Johannes Brøndsted, Director of the National Museum of Copenhagen.

The discussion of the skull form, stature, and proportions of the Stone Age inhabitants of Denmark is likely to prove of wide interest. In the four Danish finds of Mesolithic man there are few indications of close relationship to the Upper Palaeolithic men of Europe. Even the Koelbjerg skull, which is said to show some traits in common with Cro-Magnon man, is found on analysis to be nearer to skulls of Neolithic Danes than to any known Upper Palaeolithic skulls. There was a marked increase in stature between the Middle and Late Neolithic and this applies to males and females. The Late Neolithic people in Denmark were of more slender physique than their predecessors of the Middle Neolithic, but the shapes of their skulls were the same. The material of the Bronze Age is considered inadequate as a basis for any generalizing remarks on the population of Denmark during that period.

Although this great work is mainly for specialists in physical anthropology, it certainly contains data of considerable value to prehistorians, and will be continually consulted by those requiring an authoritative source of information about particular Neolithic and Bronze Age graves in Denmark. All who use this work in our own country will appreciate the excellence of the translation into the English language.

KENNETH P. OAKLEY

Die ältere Bronzezeit in der Altmark. VON EBERHARD STEPHAN. 11 $\frac{3}{4}$ \times 8 $\frac{1}{4}$. Pp. 68. Veröffentlichungen des Landesmuseums für Vorgeschichte in Halle: Heft 15. Halle: VEB Max Niemeyer Verlag, 1956.

Dr. Stephan's study of the Early and Middle Bronze Age in the Altmark links Sprockhoff's work on Lower Saxony with that of Bohm in Mark Brandenburg. Though poorer than the neighbouring 'nordic area', thanks to its geographical position in the Elbe bend on one of Europe's major river routes, the Altmark reflects to some extent all the North European developments. The Early Bronze Age brought Leubingen culture bronzes (contemporary Aunjetitz) from the south; then in period II (Reinecke B-C) it is the Lüneburg region immediately north which predominates, and in period III (Reinecke C-D) the westward spread of Lausitz elements is seen along the Elbe.

There is a calamitous absence of pottery between the Late Neolithic culture, which is allied to Kugelamphora, and the appearance of Lausitz types, so the discussion is restricted to bronzes; it is therefore to be regretted that no pots are illustrated even from period III, when they do appear. Cremation had started already at the end of the Neolithic with a 'Jutlandish beaker' upside down over ashes, but inhumation, usually in tumuli, is the rule until period III, when cremation increases rapidly, especially in the Glockengräber, whose early appearance on the Elbe is important in view of their westward spread in the Late Bronze Age. There is an interesting discussion of cast and incised rings (Lüneburg and Flächenringe) which are shown convincingly to have been

worn as anklets, and of the Lüneburg and Spindlersfelder fibulae. The distaste of northern metal-workers for hammering and boss-work in general is emphasized: when bosses are produced, as on some fibulae, they are cast. Much of this material is new to us; it is conveniently and attractively presented with a detailed catalogue of finds, their associations, and distribution.

N. SANDARS

Jungbronzezeitliche Hortfunde. Der Südzone des nordischen Kreises (Periode V). VON ERNST SPROCKHOFF. Römisch-Germanisches Zentralmuseum zu Mainz, Katalog 16. $11\frac{1}{2} \times 8\frac{1}{4}$. Band 1. Pp. xi + 292. Band 2. Pp. 162 + Taf. 76. Mainz: Verlag des Römisch-germanischen Zentralmuseums, 1956.

These two volumes complete Professor Sprockhoff's magisterial work on the Late Bronze Age hoards of northern Germany. The study of period IV appeared in 1937 and the present work is a continuation on a considerably larger scale. More than 285 hoards are listed with numerous maps, and illustrated with some comparative material from other regions. The fine illustrations are especially valuable as a part of this material is now lost.

The author has disarmed criticism of his austere typological treatment of the objects by classes and categories as being that essential stage in all studies, the primary investigation of sources. As in the earlier work, like objects are illustrated together, but the parts of any hoard can be reunited by using the lists, and each class is discussed very fully with a short chapter of conclusions of far-reaching importance. The method seems justified by the concentration of the period under consideration. Professor Sprockhoff's distinction between a Nordic heritage, north German, and Urnfield-derived material requires frequent references to the Late Bronze cultures of central Europe and southern Germany with their different chronological labels. Attempts to co-ordinate Reinecke's and Montelius's systems have shown that direct alignment does not carry conviction. Although there is a break between hoards of periods IV and V, and though both correspond in part to southern Hallstatt B, the break is not the same as that between Gersbach's and Vogt's Hallstatt B I and II. The northern periods with their hoard-horizons cannot be expressed in terms of the total cultures farther south, whether later Urnfield or new Tumulus. It is better to confine comparisons to the hoards of *both* areas. There is a striking contrast between the scarcity of founder's hoards in the north and the number of finely decorated objects in good condition, a difference which the long northern resistance to cremation only partly explains.

N. SANDARS

Early Man in South Buckinghamshire. An introduction to the Archaeology of the Region. By J. F. HEAD. $8\frac{1}{2} \times 5\frac{1}{2}$. Pp. xix + 175. Bristol: John Wright & Sons, Ltd., 1955. 21s.

Mr. Head has undertaken an excellent work and this book is a valuable addition to Middle Thames archaeology. He has surveyed the district logically and has not attempted any unorthodox topographical or other divisions. His chapter-headings follow the recognized periods and divide the work up for easy reference and the gazetteer covers most of the material published and unpublished from the district. There is still quite a lot of matter requiring publication. That the area would repay further systematic investigation both by field survey and by excavation is well known. Very little original investigation has been undertaken for many years apart from Mr. Head's own efforts and the Wycombe Marsh Roman villa, and that a rescue dig. In this respect the chapter 'Some suggestions' is valuable and the County Archaeological Society or some similar body with authority should form an excavation committee to carry out a carefully arranged programme which would include the investigation of some of the hill-forts mentioned such as Desborough Castle, Medmenham, and West Wycombe. The earthworks of the interesting

promontory camp at Danesfield, Medmenham, having now been so much disturbed by development operations both of former and present owners, there is little hope of carrying out any profitable excavation there. There are at least two other Roman sites in the Hambleden valley which would be complementary to the Yewden farm site, excavated as long ago as 1912. In this connexion the useful chapter on museums contains the final published account of Hambleden Museum, which has now been closed down and the building used for other purposes. All the collections relating to south Buckinghamshire have, however, been transferred to Aylesbury. It is in respect of local collections that South Buckinghamshire has been most unfortunate. The collections of the former Maidenhead Museum which included much material from the Taplow area are now scattered. Marlow Museum has been transferred to Aylesbury, and now Hambleden has gone the same way. While it is satisfactory that the existing material is in safe keeping and has nearly all been noticed by Mr. Head, it is not the same as having the museum on the spot with some personnel to deal with the many chance finds that continually turn up on new building estates and from public works. On the subject of museums, Eton College museum seems to have been missed; among other specimens it houses the fine bronze brooch from Datchet with amber and blue glass beads mentioned in the gazetteer, together with bronze weapons of the Rev. E. Hale and other collections. Mr. Head has, however, covered his area so well that there is little to add except a regret that whilst he was doing it he might have included the whole of the county and thus prevented the exasperation of one who, looking up a well-known site in the book, finds that, although in the county, it is outside the area described. The line-drawings are of excellent quality and so are many of the photographs. Those of bronze implements, figs. 15, 18, and 19, would probably have been more useful if they had been drawn. The maps have been reduced a little too much for clarity.

F. M. UNDERHILL

Die Goldhörner von Gallehus. By ERIC OXENSTIERNA. 9½×6½. Pp. 247+figs. 179. Lidingö, Sweden: by the author at Falkstigen 10, 1956. £3. 1s.

The two famous gold horns from Gallehus, which date from the end of the Danish Roman Iron Age, have attracted more attention in the last three hundred years than any other archaeological find in northern Europe. In 1802 the horns were stolen in bizarre circumstances from the Copenhagen *Kunstammer* and were melted down as bullion—they are now known only from the drawings and engravings of the period before that date. Count Oxenstierna deals factually, if somewhat summarily, with the history of the find, with the archaeological dating, and with the reconstruction of the horns, and then concentrates his attention on an iconographical description and interpretation of the figural and other scenes depicted on them: unfortunately this latter section seems rather less reliable than the others.

The methods used by the author in his iconographical interpretation are fair and valid and he realizes their limitations; stating that when the disciplines of ethnography and religious history are used in such a study they can only produce an assumption, not a result. Too often, however, he forgets, in his enthusiasm, these limitations and wanders off into quite serious comparisons with the material culture of Easter Island, with the Robin Hood legend, or with the custom of beating the bounds, in relation to scenes of which his interpretation is highly debatable. Despite all criticism, however, and one could criticize almost every section of the iconographical portion of the book, the author, in his summary, reaches the heart of the problem of the interpretation and the further study of the Gallehus horns when he says: 'any criticism of the interpretation must be a criticism of the method or a replacement with a better one. *Otherwise we must return to loose speculation concerning the problems raised by the different figures when taken out of their context.*'

DAVID M. WILSON

Architecture in Britain: The Middle Ages. By GEOFFREY WEBB. 10½ × 7. Pp. xxii + 234 + 281 illustrations + figs. 91 in text. The Pelican History of Art. Penguin Books, 1956. 52s. 6d.

There has long been serious need of a synthesis, or at least an Ariadne's thread, for the student of British Architecture in the Middle Ages. The half-century that has elapsed since the publication of Prior's *Cathedral Builders*, Bond's *Gothic Architecture in England*, and Lethaby's first volume on Westminster Abbey has been one of prodigious expansion in the field of research, structural and documentary. Specialized studies of many kinds, and innumerable papers and notes, need to be taken into account as well as the major changes in historical background implicit in the work of Coulton, Professors Knoop and Jones, and Mr. Salzman, and the impact of foreign views such as those of Strzygowski, Worringer, and Focillon.

It was to be expected that the Pelican History would provide the long-awaited key in this field, as it has already done in others; the chief criticism of Mr. Webb's work is that it is something entirely different. Here is a book weak in apparatus (Notes and Bibliography fill less than a quarter the space they do in Miss Rickert's and Mr. Stone's companion studies of painting and sculpture, Index half as much), though strong in outline generalization. Few of its statements are adequately documented and there are too many slips of detail and dating. To give only one example: Edward III's 'Round Table' of 1344 at Windsor, explicitly documented as a stone structure of 100 feet radius (Walsingham, *Hist. Angl.*, R.S., i, 263; cf. Hope: *Windsor Castle*, i, 114), is described (p. 188) as a temporary timber work of 100 feet diameter and so 'about the same' as the Ely octagon surrounded by an aisle. The plates, which are beautifully reproduced, are often inadequately captioned, plans are to many different scales, sometimes without a compass-point and even (Figs. 34, 76) west for east.

The many excellences of the text are wasted in a reference book of this kind, whereas by some compression they would have formed a valuable and thought-provoking essay. Readers are specially recommended to pages 46-49, 56-57, 72-74, 117-25, and 139-42 for illuminating passages of outstanding importance.

JOHN H. HARVEY

The Church of St. John in Valletta. By SIR HANNIBAL P. SCICLUNA. With a Foreword by Sir Harry C. Luke. 12½ × 8½. Pp. liii + 428 + 50 coloured illustrations + 718 figures on 301 half-tone plates + 2 folding plans. Rome: for the Author, 1955. £12. 12s.

Exhaustive architectural monographs are few and seldom provided with adequate illustrations. This sumptuous volume is then a rarity, describing not only the fabric of Malta's notable Co-Cathedral, but also photographing every monument and giving the text of every inscription. This quality of completeness deserves the highest praise.

A short introduction on the Order of Knights Hospitaller puts the church in its historical background, and its architecture is then described by Mr. Raymond Judge and from notes by Dr. Quentin Hughes, who regards the building, in spite of its High Renaissance style and decoration, as essentially an example of the Early Baroque based on the churches of the Counter Reformation and especially on the Gesù. This, brand new, was seen by the Maltese architect Gerolamo Cassar, who visited Rome in 1569, and its lessons incorporated by him in St. John, built in 1573-7. But the most outstanding feature is the slightly pointed vault, possibly founded on precedents in Rhodes or Sicily, though it seems to have a more immediate connexion with Juan de Herrera's archway in the front of Valladolid Cathedral, a feature hitherto regarded as faulty construction: an explanation not tenable at Malta.

Every chapel and each work of art is described and the abundant and well-produced colour and half-tone plates provide a most thorough record of the building, its contents, and its rich colour-decoration. It is devoutly to be wished that other great monuments of art will find historians as learned, as patient, and as munificent.

JOHN H. HARVEY

Inventory of British Coin Hoards, A.D. 600-1500. By J. D. A. THOMPSON. Royal Numismatic Society, Special Publication, no. 1, 1956. 9½ × 7½. Pp. xlix + 165 + pls. 24. Sold by Messrs. Spink & Sons Ltd., 5-7 King Street, London, S.W. 1. 35s.

We should have had a book on this subject long ago. British coins attract specialists and comprehensive books are few and far between. The subject was well worth a special volume of the Royal Numismatic Society and we can be grateful for the financial support of the Council for British Archaeology.

Mr. Thompson's book, the fruit of work over many years, is bound to become an essential work of reference, not only to numismatists, but also to archaeologists interested in the pots or other objects found with the coins, since these also are described and illustrated. Unfortunately the book must in some important respects be approached with caution.

Numismatics is an exacting study, requiring infinite attention to detail. A book which sets out to give detail should give it right, and should reflect the results of published research as close to the date of publication as possible. A book which purports to give the whereabouts of coins and objects found with them should, as an elementary precaution, take the trouble to check what is in the British Museum. The true value of the general picture conveyed and of the collection of sources, never previously attempted, suffers because Mr. Thompson seems to have found it difficult to conclude this major undertaking with the level of accuracy and thoroughness at which he aims.

A remedy might lie in the promised second volume, dealing with hoards after 1500. A comprehensive list of corrections, additions, and reassessments would enable the details of Mr. Thompson's bold endeavour to be approached with greater confidence. This is a task for collaboration between specialists in particular fields. The Royal Numismatic Society would round off a service to archaeology if they could see this further task through.

D. F. ALLEN

Silberne Abendmahlgeräte in Schweden aus dem XIV. Jahrhundert. Av ARON ANDERSSON. 12 × 8½. Band 1. Text, Pp. 252. Band 2. Katalog und Tafeln, Pp. 65 + Taf. 120. Stockholm: Kungl. Vitt. Hist. och Antik. Akad.

Few persons outside Sweden can have had any inkling of the importance of the task which Mr. Andersson had set himself when he undertook the cataloguing of fourteenth-century chalices surviving in Swedish churches. The process of church spoliation undertaken under Gustavus Vasa was conducted on quite different lines from that which was carried out in the name of our Tudor sovereigns. Whereas in this country everything and everyone conspired to permit the survival of only the least important pieces, in Sweden the churches would seem to have been free to retain the most useful of their chalices. Swedish churches on the eve of the Reformation, it will be noted, were still using fourteenth-century chalices, whereas English churches had ones of comparatively recent date, having worn out those which had been acquired under episcopal compulsion in the thirteenth century.

When Mr. Andersson comes to analyse his chalices, he produces rather startling results. Whilst Mr. Thor Kielland found reason for assuming the existence in medieval Norway of quite a substantial number of native goldsmiths admittedly much influenced from abroad (mainly from England), Mr. Andersson has been unable to identify any truly Swedish strain. Sweden was, in the fourteenth century, in the grip of the Hanseatic League and it would appear to be merely a question of whether a given chalice was imported from Germany or made in a Swedish town by a German craftsman. After providing a list of known goldsmiths working in Sweden at this period, he points out that half the names are German. He remarks that the main Scandinavian saints were also venerated in Lübeck, so that their representation on a chalice is

not conclusive evidence of manufacture in Sweden. It is possible that Mr. Andersson has concentrated a little too much on the German connexion, since there is a small group of chalices (and fragments of chalices) which seem to show English influence in the part of Sweden which faces towards this country. Here, however, we are faced with the difficulty that only four fourteenth-century chalices survive in this country and it is only possible to make a direct comparison in a single instance.

Mr. Andersson has used much skill in identifying the products of some of the workshops and in classifying the chalices into social categories—those commissioned by the nobility and those made for stock. It is not possible here to enter into discussions on individual pieces and we may conclude by remarking that the number and quality of the illustrations are equal to the importance of the book.

C. C. OMAN

The Victoria History of Wiltshire, Vol. 5. Ed. by R. B. PUGH and ELIZABETH CRITTALL. 12 × 8½. Pp. xxi + 383. Published for the Institute of Historical Research by the Oxford University Press, London, 1957. Cloth 105s.; half-leather 126s.

The present book, as the Editor points out, is an experiment. In the place of the usual chapter on political history a whole volume is devoted to a series of articles on administrative and parliamentary history. The medieval period is covered by three chapters on 'The King's Government', 'Feudal Wiltshire', and 'The Commons of Wiltshire in Medieval Parliaments'. The post-Reformation history of the county is divided into the three conventional periods, each with a chapter on 'County Government' and on 'Parliamentary History'. In one way the experiment is highly successful. The individual articles have a thoroughness of treatment and a clarity of presentation that the old comprehensive 'Political History' chapter could never attain. The result is a great amount of excellently arranged and digested information and some valuable, if not surprising, general conclusions.

But for this a heavy price has been paid. The division of 'political history'—itself a compartmental subject—into 'parliamentary' and 'administrative' does two things. In the first place a heavy stress is laid on the details of parliaments and their members and thereby the tendency, nowadays so prevalent, is encouraged of mechanically applying to other periods of history the method that Sir Lewis Namier used so brilliantly for the mid-eighteenth century. This produces odd results. It is difficult, for example, to discover from this volume what Wiltshiremen were aggrieved about in the early seventeenth century and why they took the sides they did in the Civil War. The three medieval chapters are, in themselves, models of historical writing, but each subject is treated in abstraction, its most important feature—its interaction with the others—is ignored, and the section has, in consequence, a static air. The second result of an attempt to write political history solely in terms of parliament and administration is a disregard of the many other factors in politics. Particularly striking is the assumption, less obvious in the last period, that those sections of the population that had no parliamentary representation had no politics. It is this that accounts for the wholly inadequate treatment of the 'Clubmen', a movement largely confined to Dorset and Wiltshire and therefore, one would have thought, deserving of definitive treatment in a volume on the political history of Wiltshire.

These criticisms, however, cannot obscure the fact that the present volume is an advance on the old 'political history' chapter. With a different approach, emancipated from the yoke of Tout and Namier, it could have been a giant's advance.

E. MERCER

Royal Beasts. By H. STANFORD LONDON, with drawings by HAROLD B. PEREIRA. 9½ × 7½. Pp. ix + 85. Produced by the Heraldry Society, East Knoyle, Wilts. 1956. 12s. 6d.

That province of heraldry which embraces royal beasts and fabulous monsters, and their

association with particular families or dynasties, has been at best inadequately charted. In this difficult terrain our fellow, Mr. Hugh Stanford London, Norfolk Herald Extraordinary, is the best and most reliable of guides. His knowledge lay behind the choice of the Beasts which guarded the Annexe to Westminster Abbey at the Coronation, and he has already produced a popular work on their significance and history. Heraldic scholars will be all the more grateful that the Heraldry Society has made it possible for him to elaborate his ideas in this field and to set them forth at fuller length and with a magisterial weight of references. Although Mr. London devotes his attention in the main to the ten selected beasts which stood on duty at Westminster, there is plenty of information on other royal badges, and also a valuable section on 'Beasts and Badges' in general which one would gladly see extended. The last chapter contains a useful list of parallel series of beasts in other places. The appearance of this volume, which is warmly to be welcomed, has been enhanced by handsome drawings by Mr. Harold Pereira. It is to be hoped that its publication will stimulate other students to research in this still only partly explored field.

M. MACLAGAN

English Historical Scholarship in the Sixteenth and Seventeenth Centuries. A record of papers delivered at a Conference arranged by the Dugdale Society to commemorate the Tercentenary of the publication of Dugdale's *Antiquities of Warwickshire*. Ed. by LEVI FOX. 9½ x 6½. Pp. vii + 153. Published for the Dugdale Society by the Oxford University Press, London, 1956. 21s.

Those who attended the tercentenary celebrations at Warwick of Dugdale's *Warwickshire* organized by the Dugdale Society under the presidency of Sir William Dugdale keep the happiest memories of an occasion that was at once friendly, dignified, and devoted to learning. This permanent record of the proceedings confirms their memories. It was the *Antiquities of Warwickshire* that were commemorated; the thorny problem of Dugdale's debt to others in the *Baronage* and the *Monasticon* was not obtruded, though no doubt it will be elucidated in the definitive biography that the Dugdale Society hopes to issue in a few years' time.

Dugdale was a typical antiquary of the period between the lapse of the Elizabethan Society of Antiquaries and the foundation of our own. He was a herald in interests as in office; a student of charters; an historian of great families, and a member of the Surrendon Society that seems to have been the only antiquarian organization of his time. If for no other reason, he will always be remembered with honour as the inspirer of Anthony Wood.

The papers read for the tercentenary of his *Warwickshire* hold much to interest the archaeologists of today, especially the paper by Mr. Michael MacLagan on genealogy and heraldry in the sixteenth century and the brilliant essay by Professor Piggott on antiquarian thought in the sixteenth and seventeenth centuries. The brief notes on the copies of the Rous Roll will be found most useful for reference.

JOAN EVANS

PERIODICAL LITERATURE

PROC. BRIT. ACAD., vol. 42, 1956:—Place-names and the Anglo-Saxon settlement, by A. H. Smith; The Normans and the Welsh March, by J. G. Edwards.

TRANS. ANCIENT MONUMENTS SOC., vol. 4, 1956:—England's tribute to the architects and craftsmen of France, by J. Swarbrick; Staunton Harold, Leicestershire, and Foremark, Derbyshire—two Laudian Gothic churches now under restoration, by L. Osman; The Victorian restoration of Wells Cathedral Church, by L. S. Colchester; Henry, ninth Earl of Northumberland, and Syon House, Middx., 1594–1632, by G. R. Batho; False fronts in minor domestic architecture, by A. Arschavir; Ice-houses, by F. W. B. Yorke; The Banbury region—minor domestic architecture before 1600, by R. B. Wood-Jones.

JOURN. ROY. ANTHROP. INST., vol. 85, pts. 1 and 2:—A comparison of the stone tools of the Tasmanian and the Australian Aborigines, by S. R. Mitchell; The Mugharet el-Emireh in Lower Galilee: type-station of the Emiran industry, by Dr. D. A. E. Garrod, F.B.A., F.S.A.; The fossil man of Gánovce, Czechoslovakia, by Dr. E. Vlček.

ANTIQUITY, no. 121:—Mycenaean Records: A Review, by T. B. L. Webster; Salina: a prehistoric village in the Aeolian Islands, by M. Cavalier; The Shrine of St. Peter: a review, by E. Sjöqvist; Excavations at Jamestown, Virginia, by J. L. Cotter; Four Spanish Hill-Forts, by A. H. A. Hogg; The first Universities, by H. Humphreys; Civilization, cities and towns, by V. G. Childe; Comment on 'Early Goats', by C. A. Reed; Fore and aft rigging in the Roman Empire, by R. W. Hutchinson; Digging-sticks and their use in Java, by the late R. G. Collingwood; The Sutton Hoo ship built in Sweden?, by N. E. Lee.

No. 122:—Graffiti of ships at Tarxien, Malta, by D. Woolner; Swiss pile-dwellings, by E. Vogt; Jericho and its setting in Near Eastern History, by R. J. Braidwood; Reply to Professor Braidwood, by K. M. Kenyon; The Brummagem Philhellene, by A. J. B. Wace; The Campignian tradition and European flint-mining, by W. C. Gabel; Wild doings in the Theological College, by A. R. Burn; Excavations near Pylos, 1956, by S. Marinatos; Hollow ways at Boitsfort, near Brussels, by I. Scollar; A Romano-Celtic sanctuary in Belgium, by P. Salway.

JOURN. B.A.A., vol. 18, 1955:—Religion in Roman Britain in the fourth century A.D., by W. H. Frend; Coggeshall Abbey and its early brickwork, by J. S. Gardner; The East Anglian bench-end menagerie, by Arthur Gardner; Great Milton, Oxfordshire, and Thorncroft, Surrey: the building accounts for two manor-houses of the late fifteenth century, by J. H. Harvey.

JOURN. R.I.B.A., 3rd ser., vol. 64, no. 6:—William Richard Lethaby, 1857–1931, a symposium in honour of his centenary, by B. Thomas, J. Brandon-Jones, B. Ward, Prof. D. T. Rice, and A. R. N. Roberts.

JOURN. ARMS & ARMOUR SOC., vol. 2, no. 4:—The experimental firearms of Henry Nock, by H. L. Blackmore.

No. 5:—Two French wheel-lock guns, by Dr. T. Lenk; Two unusual Colt revolvers, by Dr. D. McConnell; The armour on the Van der Goes altarpiece at Edinburgh, by A. V. B. Norman.

JOURN. SOC. ARMY HIST. RES., vol. 35, no. 141:—Major-General Sir John Burgoyne and the 23rd Light Dragoons, by L. E. Buckell; Culloden, by C. T. Atkinson; Badges of Kitchener's Army, by E. J. Martin.

JOURN. ROY. ASIATIC SOC., pts. 1–2, 1957:—A Tibetan inscription from Rgyal Lhakhañ; and a note on Tibetan chronology from A.D. 841 to A.D. 1042, by H. E. Richardson.

BURLINGTON MAG., March 1957:—The Processional Cross of the Chapel of Catherine of Braganza, by A. C. Pinto.

April 1957:—Henry Cheere, Henry Scheemakers, and the apprenticeship lists, by M. I. Webb.

May 1957:—The Mausoleum of Mama Hatun, by S. Kemal Yetkin.

COAT OF ARMS, vol. iv, no. 29:—Heraldry and iconography, by J. A. Goodall; More Heraldic emblems, by Sir George Bellaw; The House of Grimaldi, by J. H. B. Bedells and D. G. Williamson; Blood Royal, by G. R. Gayre; Motley Heraldry; Recent Canadian Heraldry, by A. B. Beddoe; The Raine-Dunn Roll, by H. S. London; Civic arms, by Rowland Bretton; Senois—Heraldic Tincture, by H. S. London.

No. 30:—Devises of arms during the fifteenth century, by A. C. Cole; The blount quarterings, by C. R. Humphery-Smith; The House of Grimaldi, by J. H. B. Bedells; The arms of Edinburgh, by J. A. Stewart; An armorial Bishop's cope, by A. Berghman; The arms of the Archdiocese of Westminster, by J. A. Goodall; On 'The Roll of Arms A.D. 1485', by H. S. London.

CONNOISSEUR, February 1957:—The first Derby sales of 1756, by F. B. Gilhespy; English commodes in the French taste, by R. W. Symonds; Sleeve-buttons of the seventeenth and eighteenth centuries, by F. Russell-Smith.

March 1957:—Heveningham—a great unified interior, by C. Musgrave; Connoisseur directory of period furniture design, pt. II, The 'Modern chair' of mid-Georgian days, 1750–1770; Medieval bottles from London, by I. N. Hume; A collection of Renaissance jewels, by M. L. D'Otrange-Mastai.

April 1957:—Hopetoun House, the Scottish home of the Marquess of Linlithgow, by G. W. Beard; A naval occasion in pewter, by A. V. Sutherland-Graeme; An officer's travelling furniture, by S. J. Maiden; A pair of 'royal' needlework settees, by H. C. Smith.

May 1957:—Cambridge Portraits—1. of the sixteenth and early seventeenth centuries, by J. W. Goodison; A study of English regional furniture design illustrated by examples in the collection of Mrs. Geoffrey Hart, by R. W. Symonds.

June 1957:—Fort Belvedere, home of the Hon. Gerald and Mrs. Lascelles; Horse and rider, pt. I of bronzes in the collection of Mrs. Leon Bagrit, by Y. Hackenbroch; The treasures of the Guelphs; The Brocklesby Paintings, pt. I; One hundred years of the National Portrait Gallery, by J. Kerslake; Burgundian art at the 1957 York Festival.

FOLK-LORE, vol. 68, March 1957:—The Ferryman and his fee: a study in ethnology, archaeology, and tradition, by L. V. Grinsell.

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PROCEEDINGS OF THE SOCIETY OF ANTIQUARIES

2nd October 1956. Rev. J. C. Dickinson, F.S.A.: A thirteenth-century timber screen at Great Bricett, Suffolk.

Professor F. Wormald, V-P.S.A.: The Throne of Solomon.

25th October 1956. H. J. Case, F.S.A.: The early metallurgy of copper and its spread.

1st November 1956. John Boardman: Early Greek sites and architecture in South Chios.

8th November 1956. A. L. Binns: Vikings in East Yorkshire in the tenth century, with special reference to the stones at Middleton.

15th November 1956. Dr. I. Anthony: Castros of North-west Spain and Portugal.

22nd November 1956. R. H. M. Dolley, F.S.A.: The Swedish coin hoards and the chronological and geographical pattern of the English coinage, A.D. 973-1066.

29th November 1956. Dr. R. A. Brown, F.S.A.: The political importance of English castles, A.D. 1154-1216.

6th December 1956. Dr. Glyn E. Daniel, F.S.A.: Recent work on megalithic tombs in France.

14th December 1956. Dr. Joyce Lambert, Charles Green, and Clifford T. Smith: The origin of the Broad.

10th January 1957. Dr. Naji-al-Asil was elected an Honorary Fellow. Rev. Canon H. Nightingale, General Sir James Marshall-Cornwall, Dr. M. Woodall, Mr. W. N. Hargreaves-Mawdsley, Mr. C. M. Weekley, Rev. W. E. Clarke, Lord Leconfield, Mr. L. Fleming, Mr. C. E. V. Owen, Mr. J. S. Gardner, Mr. E. K. Timings, Sir Alec Kirkbride, Sir Eldred Hitchcock, Mr. J. S. Kirkman, Miss U. M. Brown, Mr. J. Holmes, Rev. W. M. Atkins, and Mr. H. D. Colt were elected Fellows.

17th January 1957. Professor J. G. D. Clark, F.S.A.: Mesolithic Britain in the light of recent discoveries.

24th January 1957. Dr. P. Tudor-Craig: The collections of Rev. Thomas Kerrich, F.S.A., and the Paston family.

31st January 1957. Leslie Alcock: Dinas Powis, a Dark Age fort in South Wales.

7th February 1957. John H. Harvey, F.S.A.: The Wilton Diptych.

14th February 1957. B. Hope-Taylor, F.S.A.: Excavations at Old Yeavinger.

22nd February 1957. Hugh Tait: Early Tudor gold enamelled jewellery.

28th February 1957. C. A. Ralegh Radford, V-P.S.A.: Excavations at the Brough of Birsay.
7th March 1957. Dr. N. J. Williams, Mr. G. H. Richardson, Mr. H. Thwaite, Prof. A. H. M. Jones, Mr. J. Boardman, Dr. A. E. Furness, Mrs. N. Piercy Fox, Miss E. M. Clay, Major F. Jones, Mr. S. H. Perowne, Dr. A. L. Basham, Mr. L. C. Hayward, Mr. M. W. Bird, Prof. M. Grant, Dr. R. Allchin, Sir Gavin de Beer, Mr. N. Smedley, Mr. F. J. Forty, Rev. G. H. Parks, Mr. J. S. Wachter, Sir Raymond Needham, Mrs. E. V. Clark, and Dr. H. Thorpe were elected Fellows.

14th March 1957. P. Lasko: The Basel Reliquary.

21st March 1957. S. S. Frere, F.S.A.: Excavations at Verulamium, 1956.

28th March 1957. E. M. Jope, F.S.A.: The Early Iron Age in Ireland.

4th April 1957. R. R. Clarke, F.S.A.: Excavations at the Roman and Saxon site at Thornham, North-west Norfolk.

11th April 1957. *Anniversary Meeting.* The following report of the Council for the year 1956-7 was read:

Research.—Excavations were continued at Verulamium under the direction of Mr. S. S. Frere, F.S.A., a second Interim Report on these will appear in the *Antiquaries Journal*. The Society continues to take a part in the excavations at Glastonbury.

Grants from the Research Fund have been made to: Verulamium Excavation Committee; Excavation of the Roman fort at Castell Collen; for the Roman town and villa at Great Caster-ton; for work on the Colchester dykes by the Colchester Excavation Committee; for the exploration of the habitation sites at Sperries Croft, Zennor; and for rescue work on the Bon Marché site within the Roman colonia at Gloucester; and for the Expedition to Kalat.

Morris Fund.—Grants have been made to the following: Hacombe church bell, and the priest's house and chapel, Lyscombe (Dorset), to the repair of churches at Ryton-on-Tyne (Durham), Great Sampford (Essex), Beverston, Elkstone, and Newington Bagpath (Glos.), Avington (Hants), Shobdon (Hereford), Furneux Pelham (Herts.), East Sutton (Kent), Careby, Osbournby, St. Mary-le-Wigford, Screddington, and Sempringham (Lincs.), South Creak (Norfolk), Clipsham (Rutland), Limington, and Norton sub Hamdon (Som.), and Bransford (Worcs.).

Croft Lyons Fund.—The editorial work on the *Dictionary of British Arms* has been continued.

Publications.—The *Antiquaries Journal* has appeared regularly. *Archaeologia*, vol. 97, is in the press, but it has been found necessary to postpone publication until the decision of the Board of Inland Revenue on the repayment of income-tax on seven-year covenants is known. *A History of the Society of Antiquaries*, by Dr. Joan Evans, Director, was published in 1956.

Library.—A bequest was received from the late Dr. W. L. Hildburgh, F.S.A., of about 30 volumes on applied arts, together with some dictionaries. New shelving was erected in the Cross Gallery of the main Library to accommodate sets of County periodicals, which had outgrown the space previously allotted to them. About 200 new pamphlet-boxes were obtained, in which all the unbound offprints and pamphlets of the Library were redistributed, with space provided for future expansion. During the year 30 books (apart from continuations) were bought, at a cost of £64, whereas 91 publications (value £250) were received for review. Some 900 books and periodicals were borrowed by Fellows and 23 by the National Central Library. During the year, 334 volumes were sent out to be bound, while the bindings of some 500 volumes were repaired, or cleaned and renovated, in the Library.

General.—Regular meetings have been held throughout the session. The Bicentenary Fund, which continues to receive occasional donations, had a capital at the end of 1956, of £18,063, and the Research Fund of £8,801 at market valuation.

Dr. David Meredith has completed the preparation of the Coptos Map in the *Tabula Imperii Romani* series, and it is hoped to publish this during the coming year.

The Inland Revenue authorities, following the decision of Mr. Justice Vaisey in the case of the *Commissioners of Inland Revenue v. National Book League*, have held in abeyance all repayments of income-tax under deeds of covenant for the subscriptions of Fellows. This has temporarily reduced the income of the General Fund by some £2,299. Council is giving careful thought to this situation, and will take appropriate action, when the result of the appeal against Mr. Justice Vaisey's decision is known.

Council is giving careful consideration to the status and function of the Society and, in particular, the method of election of Fellows.

The following have been appointed to represent the Society: the President on the Council of the British School at Rome; Dr. Joan Evans, Director, Mrs. M. A. Cotton, and Mr. S. S. Frere on the Council for British Archaeology; Professor F. Wormald, Vice-President, on the Committee undertaking the preparation of the *Sylloge of British Coins*; Mr. S. S. Frere and Dr. P. Corder on the Administrators of the Haverfield Bequest; Dr. P. Corder on the Roman York Excavation Committee.

A final payment of \$954 dollars has been received under the will of the late Albert Whitin.

The following gifts, other than printed books, have been received:

From C. K. Croft Andrews, F.S.A.:

Two water-colour sketches of Stonehenge, 1823.

From Miss N. Briggs:

Rubbing of the palimpsest shield from the brass of Elizabeth, countess of Oxford, at Wivenhoe, Essex, 1537.

From Dr. E. S. de Beer, F.S.A.:

A manuscript commonplace book of Joseph Ames (Sec. S.A. 1741-59) bequeathed by him to Sir Peter Thompson.

From H. F. O. Evans, F.S.A.:

Rubbings of brasses in Winchester Museum.

From R. Marshall:

Pedigrees of Legh and Delafield, notes on wills, various deeds, etc.

From J. Page-Phillips:

Photostats of rubbings from the Louvre and Cluny Museum, Paris.

From Rev. M. H. Ridgway, F.S.A.:

Rubbing of the brass to John Tunstall, rector of Clayworth, Notts., ob. 1630.

From E. Yates, F.S.A.:

A collection of MS. notes by J. C. Wall on castles in England.

Obituary.—The following Fellows have died since the last Anniversary:

Sir Patrick Abercrombie, M.A., F.R.I.B.A., 23rd March 1957.

Richard Leonard Atkinson, O.B.E., M.C., M.A., 20th January 1957.

John Henry Elliot Bennett, 23rd September 1956.

Herbert Arthur Cox, F.C.A., Hon. A.R.I.B.A., 17th December 1956.

Ernest Cummins, 7th December 1956.

Thomas Gerard Davidson, November 1956.

Lt.-Col. Charles Douglas Drew, D.S.O., O.B.E., 10th October 1956.

Godfrey Dru Drury, M.R.C.S., L.R.C.P., 12th October 1956.

Sir John Pease Fry, Bt., M.A., 25th January 1957.

Mrs. Dorothy Gardiner, J.P., 23rd January 1957.

Professor John Garstang, C.B.E., D.Sc., B.Litt., 12th September 1956.

Professor Stephen Ranulph Glanville, M.B.E., M.A., F.B.A., 26th April 1956.

Arthur Edward Henderson, R.B.A., F.R.I.B.A., 8th November 1956.

William Bowyer Honey, C.B.E., 13th September 1956.

Herbert Lewis Honeyman, A.R.I.B.A., 23rd November 1956.

George Horsfield, 12th August 1956.

Arthur Jones, M.A., 14th June 1956.

Gwilym Thomas Jones, M.D., 9th July 1956.

James McIntyre, January 1957.

Sir John Stirling Maxwell, Bt., K.T., 30th May 1956.

Charles Clive, Viscount Mersey, P.C., C.M.G., C.B.E., 20th November 1956.

Professor Seán Pádraig Ó Ríordáin, M.A., Ph.D., M.R.I.A., 11th April 1957.

Charles James Praetorius, 21st August 1956.

Sir David Russell, LL.D., 12th May 1956.

Foster Stearns, A.M., L.H.D., 4th June 1956.

Michael George Francis Ventris, O.B.E., Dr.Phil., A.R.I.B.A., 6th September 1956.

Bernard Joseph Wallis, B.A., 15th February 1957.

Frank Warren, 26th August 1956.

Sir Gerald Woods Wollaston, K.C.B., K.C.V.O., 4th March 1957.

William Maurice Wright, M.A., J.P., 17th October 1956.

Francis Walter Bagnall Yorke, F.R.I.B.A., 28th January 1957.

The following were elected officers and members of Council for the ensuing year: Sir Mortimer Wheeler, President; Mr. H. L. Bradfer-Lawrence, Treasurer; Dr. Joan Evans, Director; Mr. A. R. Dufty, Secretary; Mr. C. Blunt, Mrs. M. D. Cox, Mr. W. I. Croome, Mr. R. W. Hamilton, Prof. D. Knowles, Mr. M. MacLagan, Lt.-Col. G. W. Meates, Dr. J. N. L. Myres, Lord Nathan, Sir E. de Normann, Dr. N. B. L. Pevsner, Prof. S. Piggott, Mr. C. A. R. Radford, Prof. I. A. Richmond, Mr. G. F. Webb, Prof. D. Whitelock, Prof. F. Wormald.

The President then delivered his Anniversary Address (pp. 121-130).

2nd May 1957. M. Raoul Curiel, Mr. Anandra Ghosh, and Dr. Daniel Schlumberger were elected Honorary Fellows. Mr. B. R. Hartley, Prof. A. H. Smith, Mr. R. M. Robbins, Dr. P. J. Murray, Mr. E. N. Masson-Phillips, Mr. R. E. Enthoven, Mr. H. W. Catling, Mr. H. N. Chittick, Prof. D. W. Stevens, Mr. L. Alcock, Mr. L. S. Snell, Mr. L. G. Matthews, Mr. J. T. Smith, Mr. H. L. Blackmore, Rev. G. R. Dunstan, Mr. A. Rubens, Mr. T. A. Hume, Mr. L. S. Harley, Miss I. Darlington, Mr. T. A. Darcy Braddell, Mr. P. E. Lasko, Mr. C. K. Cooke, Mr. E. J. L. Cole, Mr. J. Money, Miss N. K. Sanders, Major-General H. D. W. Sitwell, and Mr. J. W. Waterer were elected Fellows.

The President announced the appointment of Professor I. A. Richmond as a Vice-President.

9th May 1957. J. R. C. Atkinson, F.S.A.: The history of the Stonehenge bluestones.

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